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PATENT & TRADEMARK OFFICE

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LAW OFFICES OF JONATHAN ALAN QUINE

By Tracie Brooks
Tracie Brooks

Attorney Docket No. 02-106720US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	
Juha Punnonen, et al.	Examiner: Unassigned
Application No.: 09/888,324	Art Unit: 1643
Filed: June 22, 2001	LETTER TO OFFICIAL DRAFTSPERSON
For: NOVEL CO-STIMULATORY MOLECULES	

Attn:
Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicant hereby submits 39 sheets of formal drawings to be made of record in the above-identified case.

Respectfully submitted,

Emily M. Haliday, J.D., Ph.D.
Reg. No. 38,903

LAW OFFICES OF JONATHAN ALAN QUINE
P.O. BOX 458
Alameda, CA 94501
(510) 337-7871
Fax (510) 337-7877

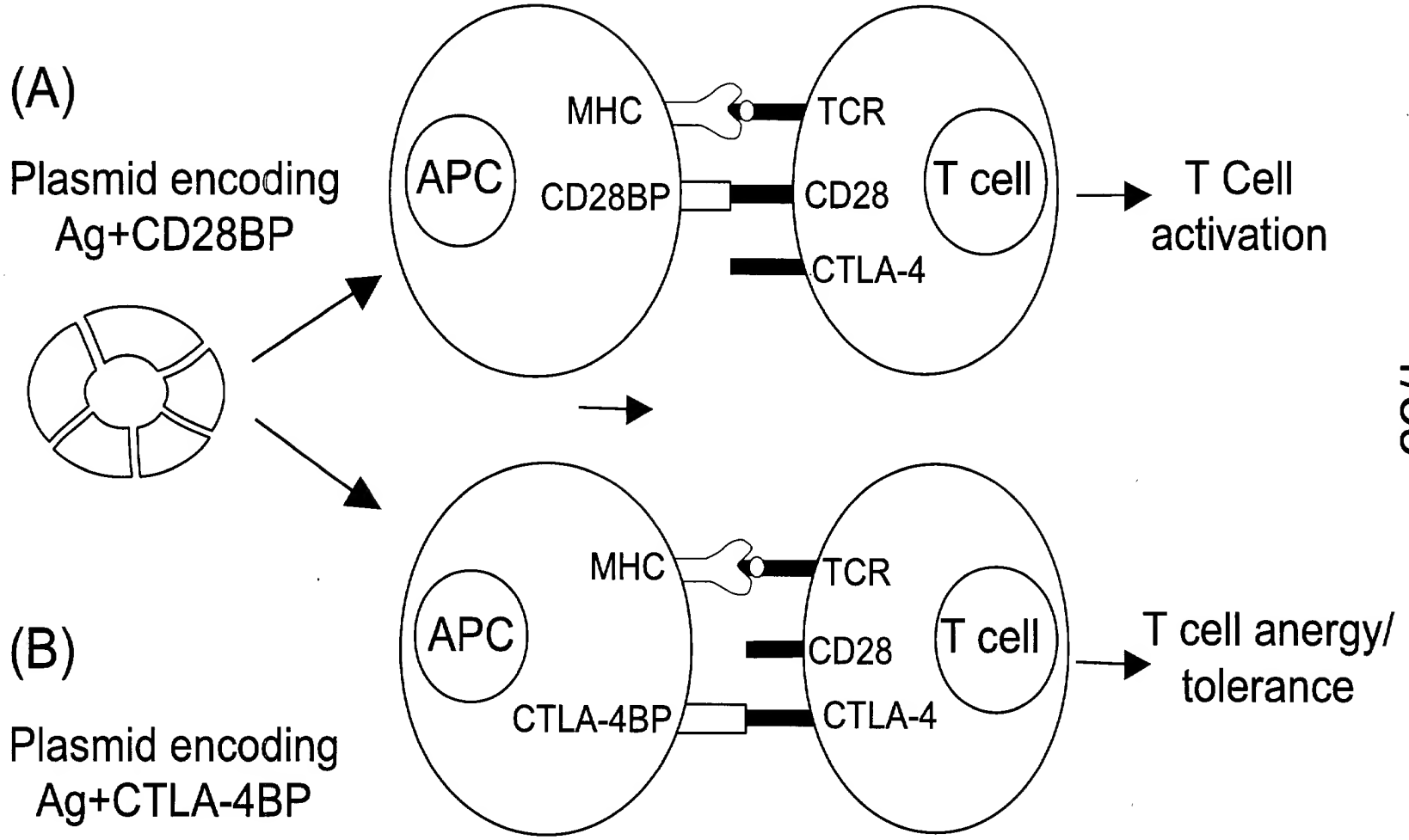
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Fig. 1

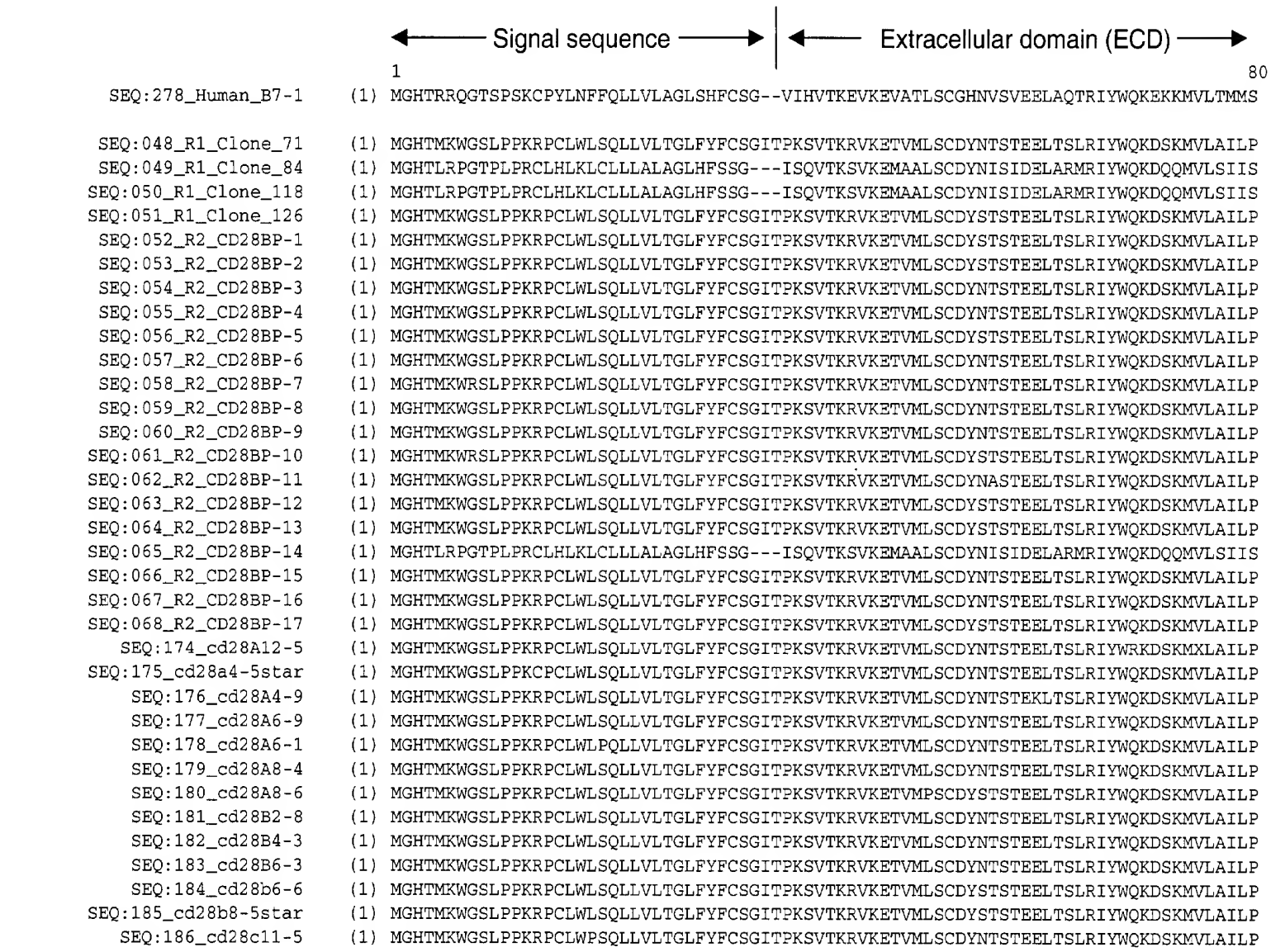
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Fig. 2A

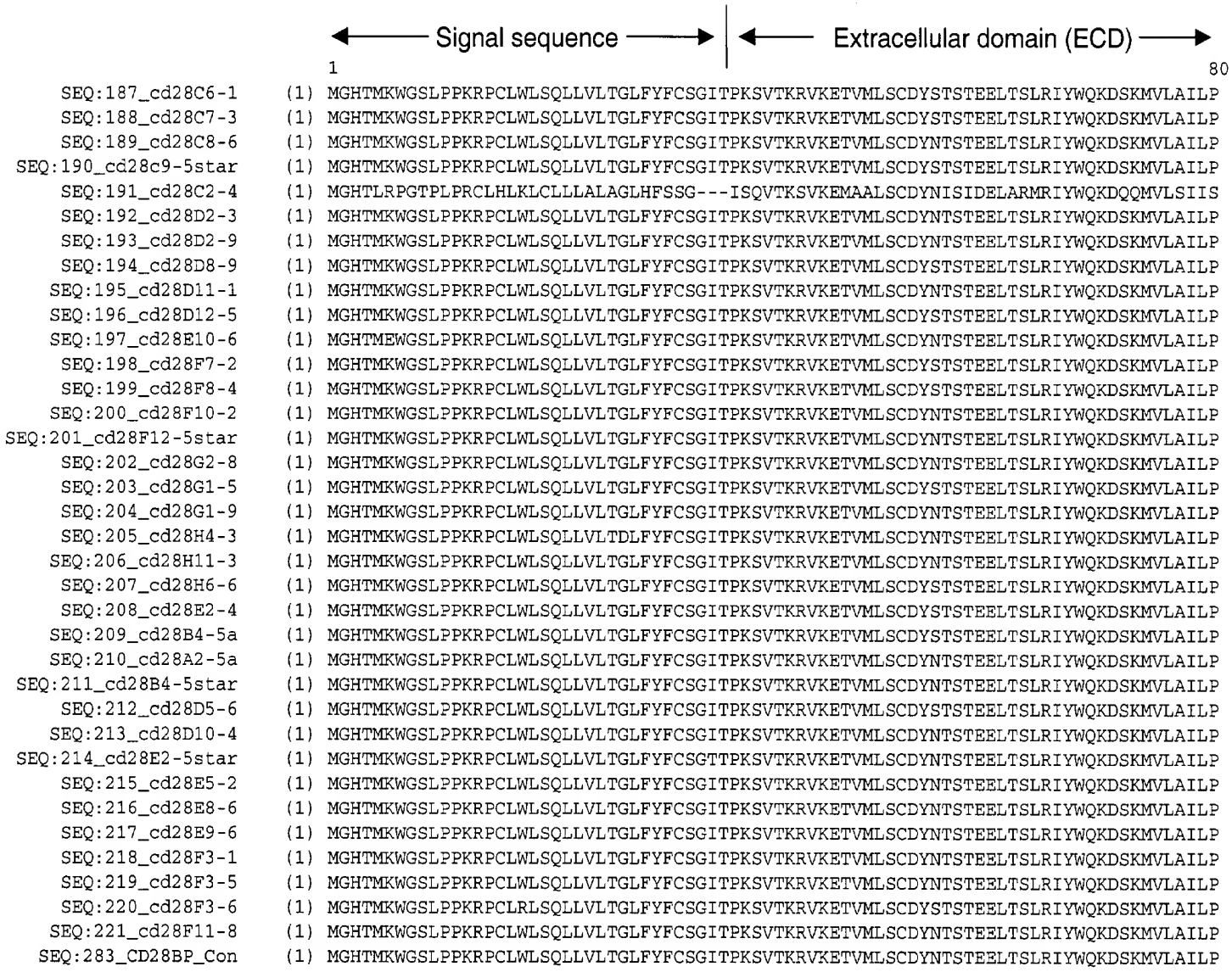
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Fig. 2B

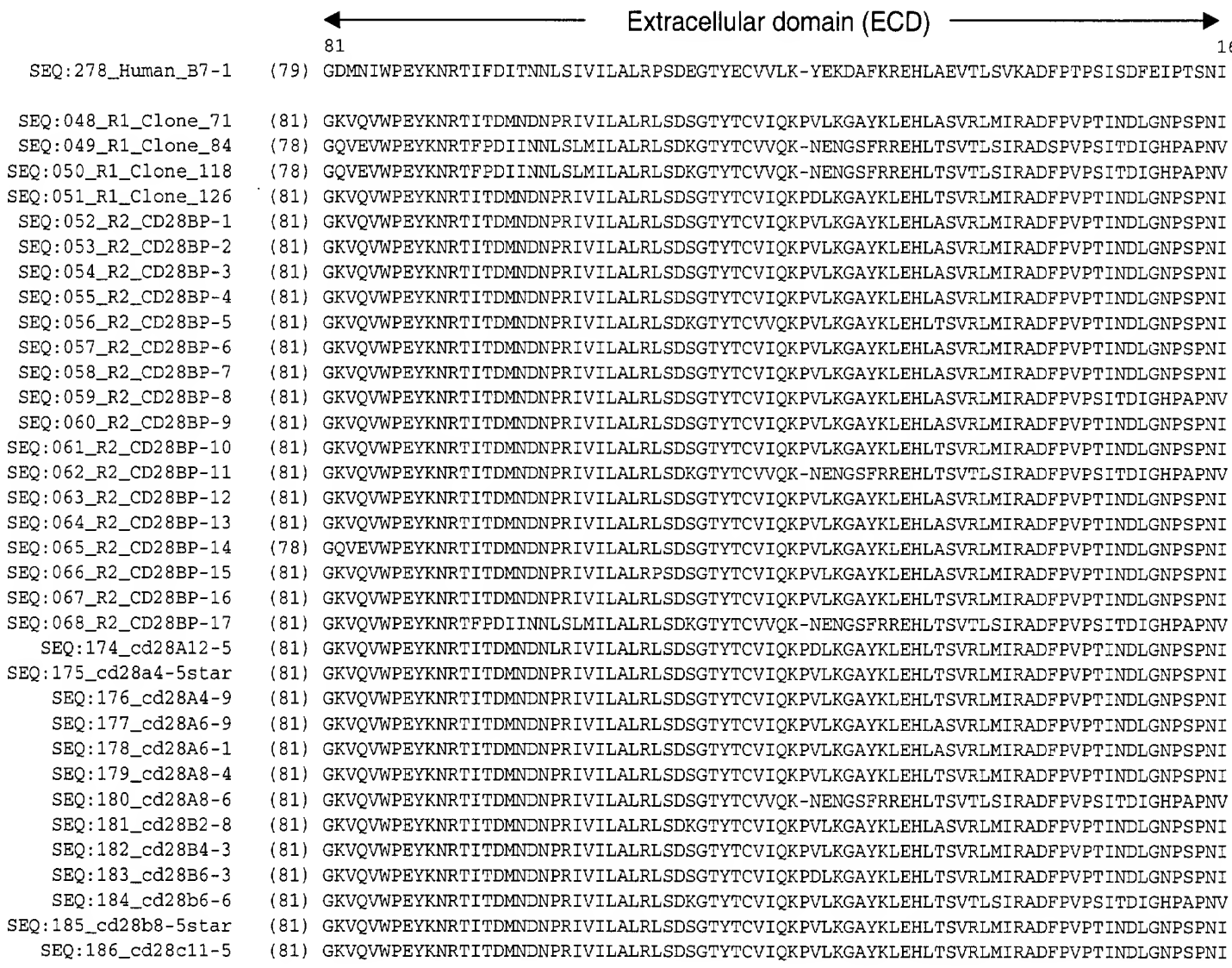
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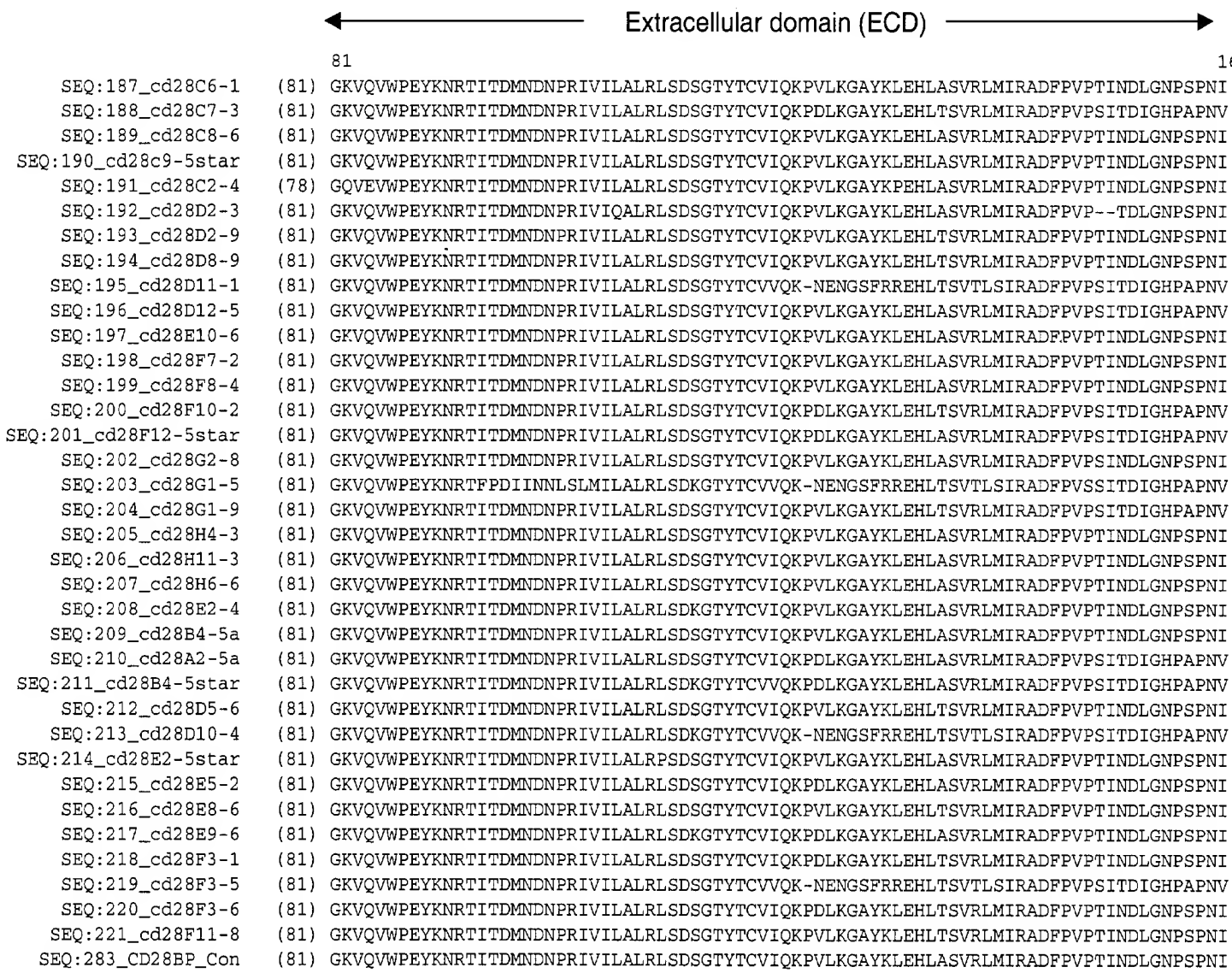
Fig. 2C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160
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SEQ:196_cd28D12-5 (81) GKVQVWPEYKNRTITDMNDNPRIVILALRLSDSGTYTCVIQKPVLKGAYKLEHLASVRLMIRADFPVPSITDIGHPAPNV
SEQ:197_cd28E10-6 (81) GKVQVWPEYKNRTITDMNDNPRIVILALRLSDSGTYTCVIQKPVLKGAYKLEHLASVRLMIRADFPVPTINDLGNPSPNI
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SEQ:201_cd28F12-5star (81) GKVQVWPEYKNRTITDMNDNPRIVILALRLSDSGTYTCVIQKPDLKGAYKLEHLASVRLMIRADFPVPSITDIGHPAPNV
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SEQ:207_cd28H6-6 (81) GKVQVWPEYKNRTITDMNDNPRIVILALRLSDSGTYTCVIQKPVLKGAYKLEHLASVRLMIRADFPVPTINDLGNPSPNI
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SEQ:214_cd28E2-5star (81) GKVQVWPEYKNRTITDMNDNPRIVILALRPSDSGTYTCVIQKPVLKGAYKLEHLASVRLMIRADFPVPTINDLGNPSPNI
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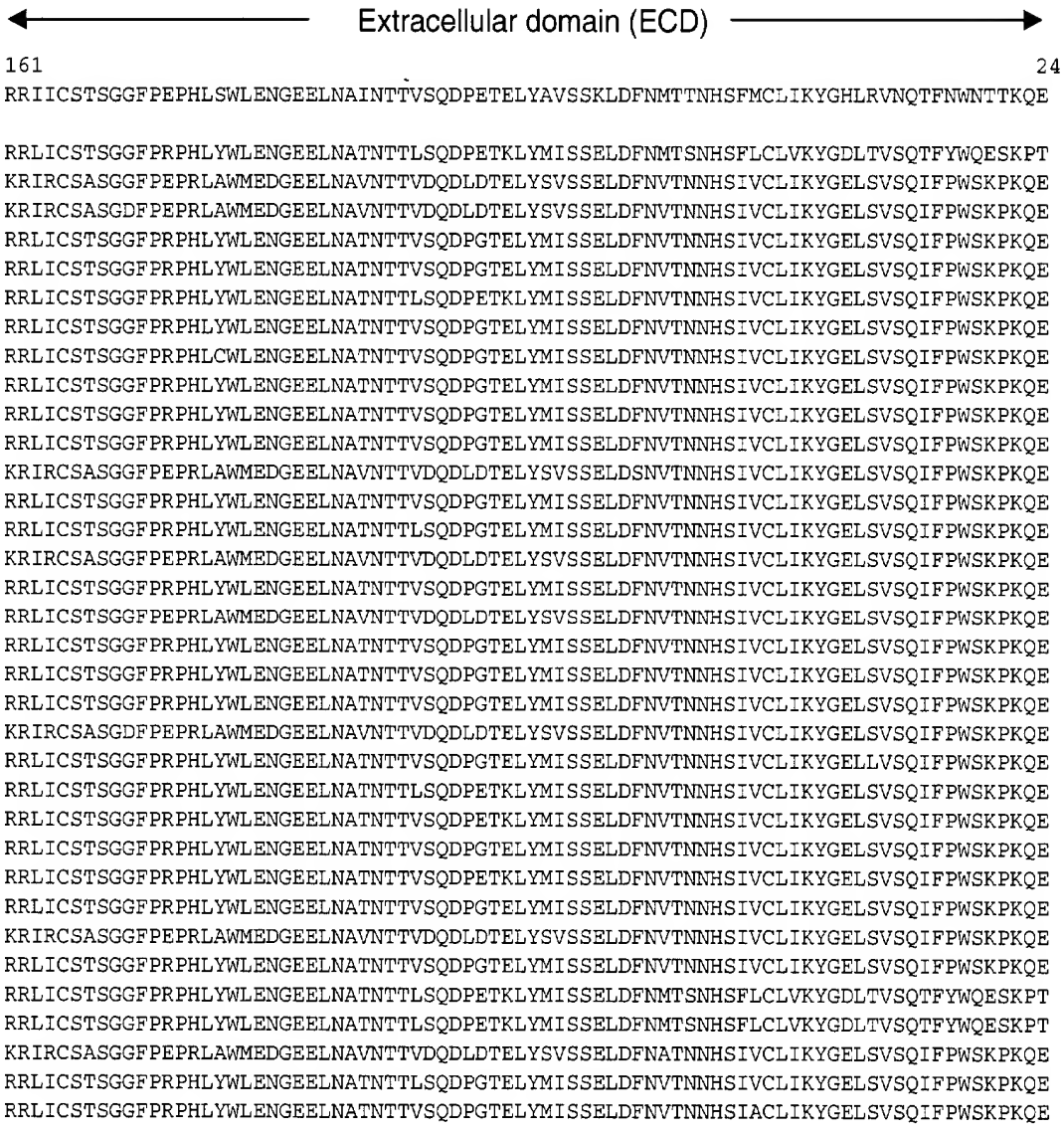
SEQ:220_cd28F3-6 (81) GKVQVWPEYKNRTITDMNDNPRIVILALRLSDSGTYTCVIQKPDLKGAYKLEHLTSVRLMIRADFPVPTINDLGNPSPNI
SEQ:221_cd28F11-8 (81) GKVQVWPEYKNRTITDMNDNPRIVILALRLSDSGTYTCVIQKPVLKGAYKLEHLTSVRLMIRADFPVPTINDLGNPSPNI
SEQ:283_CD28BP_Con (81) GKVQVWPEYKNRTITDMNDNPRIVILALRLSDSGTYTCVIQKPVLKGAYKLEHLASVRLMIRADFPVPTINDLGNPSPNI

Fig. 2D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SEQ:049_R1_Clone_84 (157) KRIRCSASGGFPEPRLAWMEDGEELNAVNTTVDQDLDTELYSVSSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
SEQ:050_R1_Clone_118 (157) KRIRCSASGDFPEPRLAWMEDGEELNAVNTTVDQDLDTELYSVSSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
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SEQ:055_R2_CD28BP-4 (161) RRLICSTSGGFPRPHLCWLENGEELNATNTTVSQDPGTELYMISSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
SEQ:056_R2_CD28BP-5 (161) RRLICSTSGGFPRPHLYWLENGEELNATNTTVSQDPGTELYMISSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
SEQ:057_R2_CD28BP-6 (161) RRLICSTSGGFPRPHLYWLENGEELNATNTTVSQDPGTELYMISSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
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SEQ:059_R2_CD28BP-8 (161) KRIRCSASGGFPEPRLAWMEDGEELNAVNTTVDQDLDTELYSVSSELDSNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
SEQ:060_R2_CD28BP-9 (161) RRLICSTSGGFPRPHLYWLENGEELNATNTTVSQDPGTELYMISSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
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SEQ:181_cd28B2-8 (161) RRLICSTSGGFPRPHLYWLENGEELNATNTTVSQDPGTELYMISSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
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SEQ:185_cd28b8-5star (161) RRLICSTSGGFPRPHLYWLENGEELNATNTTLSQDPGTELYMISSELDFNVTNNHSIVCLIKYGELSVSQIFPWSKPKQE
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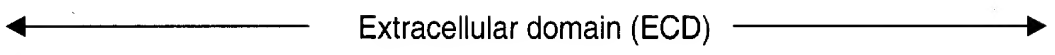
Fig. 2E

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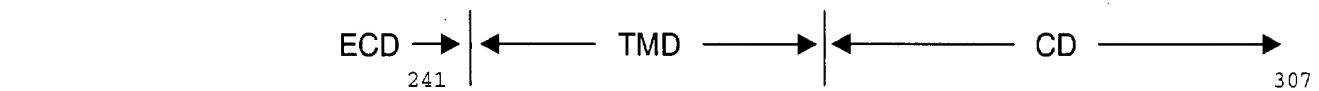


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SEQ:060_R2_CD28BP-9  (241) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
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    SEQ:180_cd28A8-6 (240) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
    SEQ:181_cd28B2-8 (241) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
    SEQ:182_cd28B4-3 (241) P-SANQHLTWTIIIPVSAFGISVIIAVILTCLTCRNAAIRRQRRENEVEMQSCSQSP----------
    SEQ:183_cd28B6-3 (241) P-SANQHLTWTIIIPVSAFGISVIIAVILTCLTCRNAAIRRQRRENEVKMQSCSQSP----------
    SEQ:184_cd28b6-6 (241) P-PIDQLPFWVIVP---VSGALVLTAVVLYCLACRHVAR----------------------------
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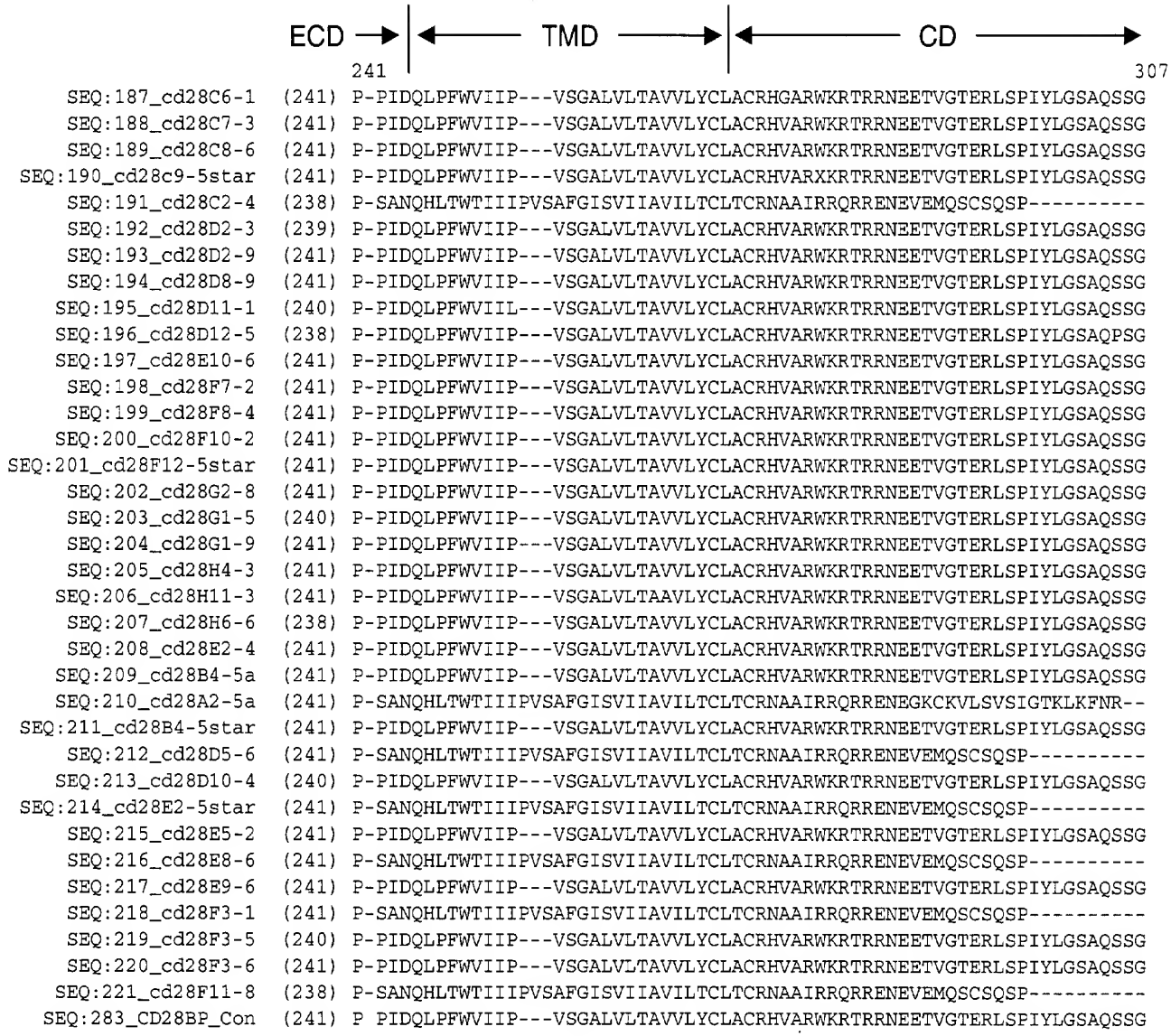
Fig. 2G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SEQ:188_cd28C7-3 (241) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
SEQ:189_cd28C8-6 (241) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
SEQ:190_cd28c9-5star (241) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARXKRTRRNEETVGTERLSPIYLGSAQSSG
SEQ:191_cd28C2-4 (238) P-SANQHLTWTIIIPVSAFGISVIIAVILTCLTCRNAAIRRQRRENEVEMQSCSQSP----------
SEQ:192_cd28D2-3 (239) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
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SEQ:194_cd28D8-9 (241) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
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SEQ:211_cd28B4-5star (241) P-PIDQLPFWVIIP---VSGALVLTAVVLYCLACRHVARWKRTRRNEETVGTERLSPIYLGSAQSSG
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Fig. 2H

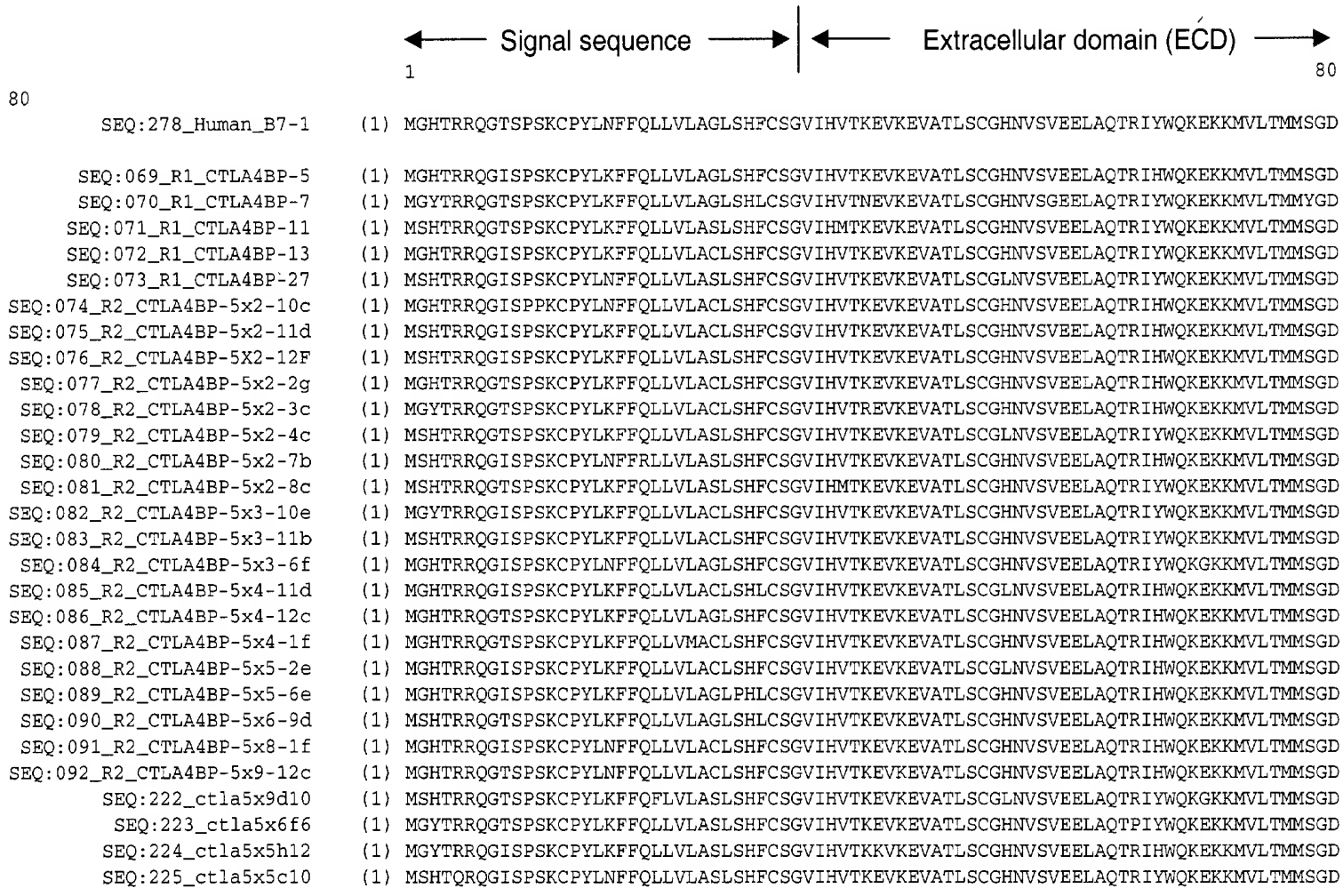
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Fig. 3A

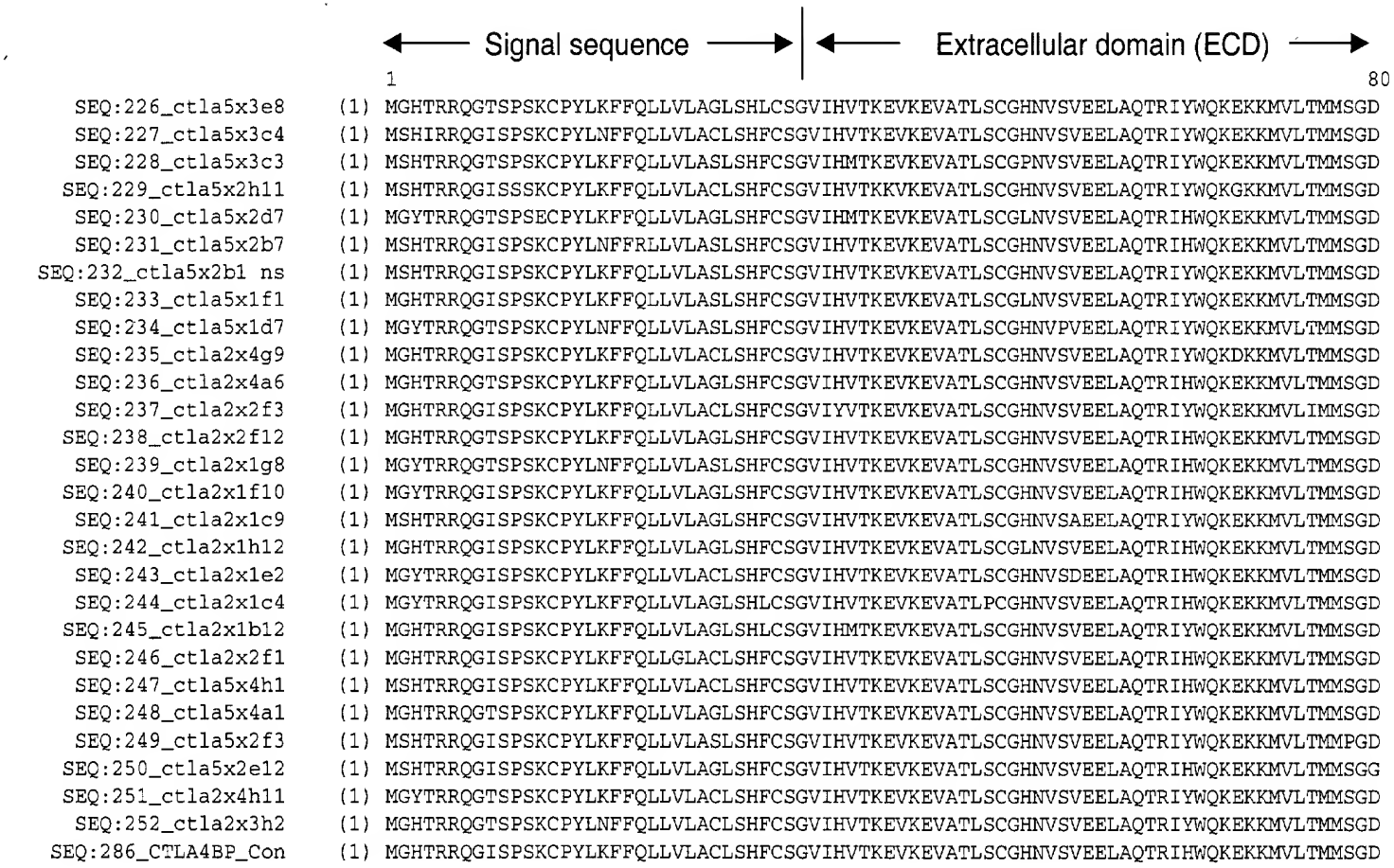
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Fig. 3B

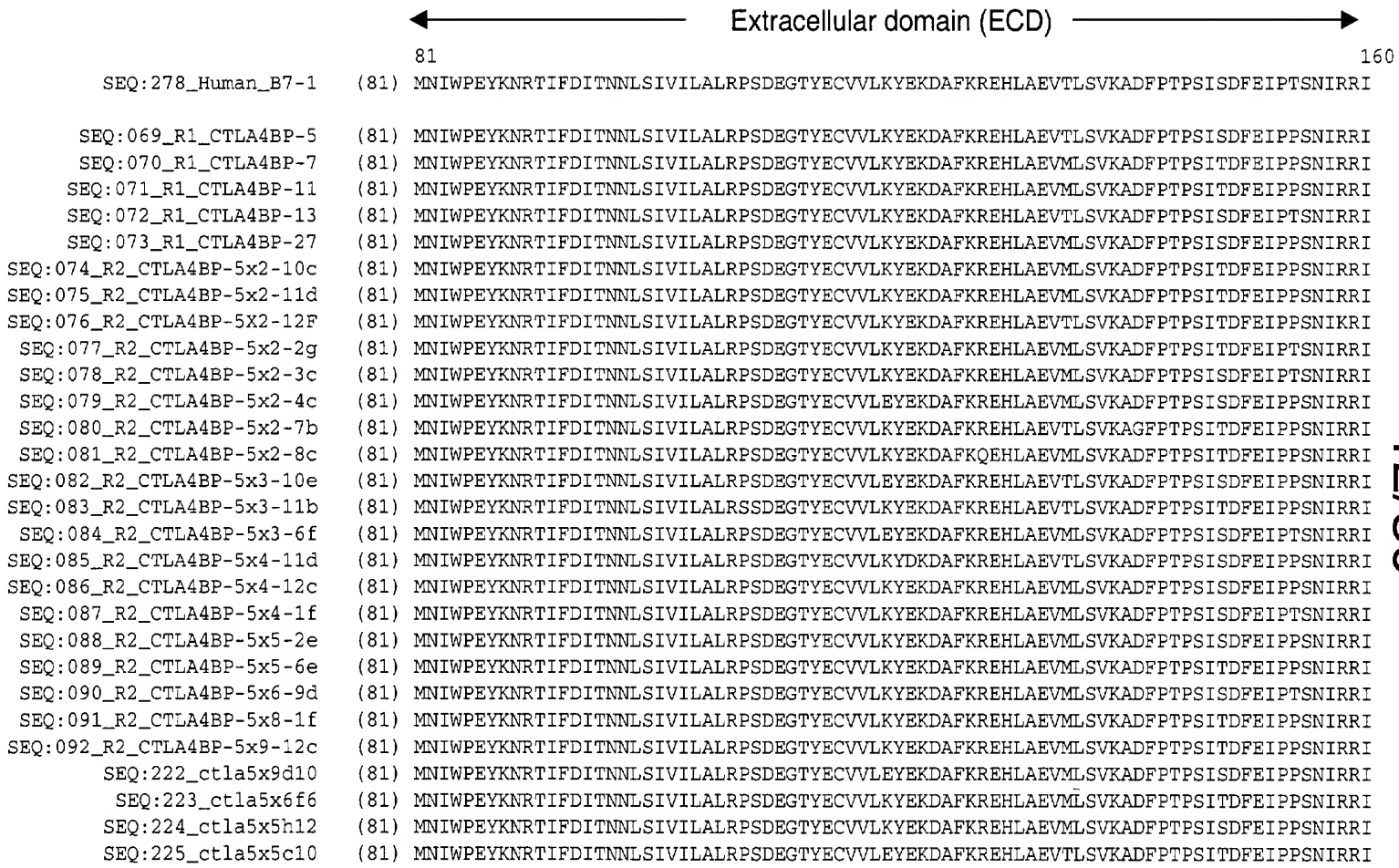
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Fig. 3C

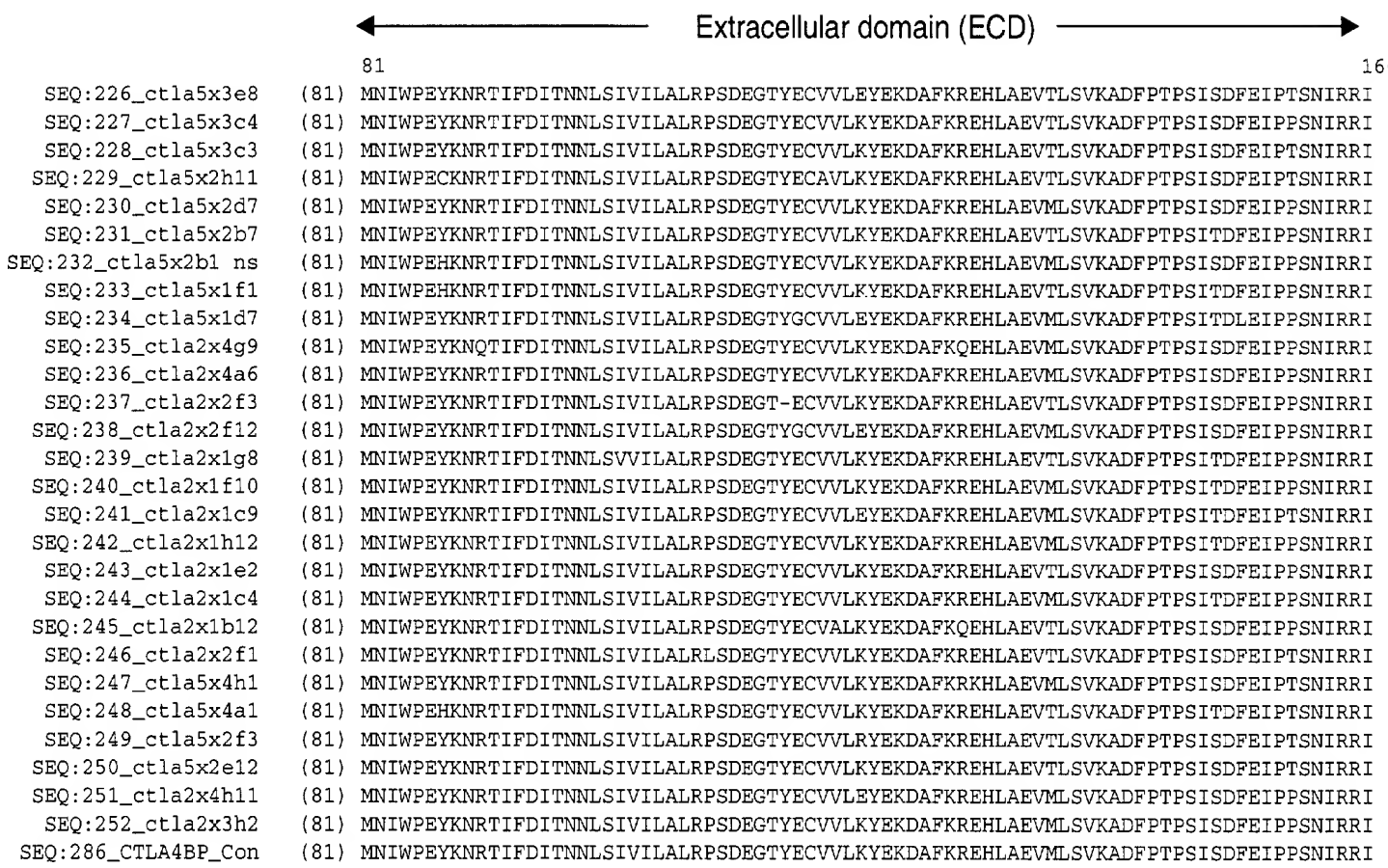
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Fig. 3D

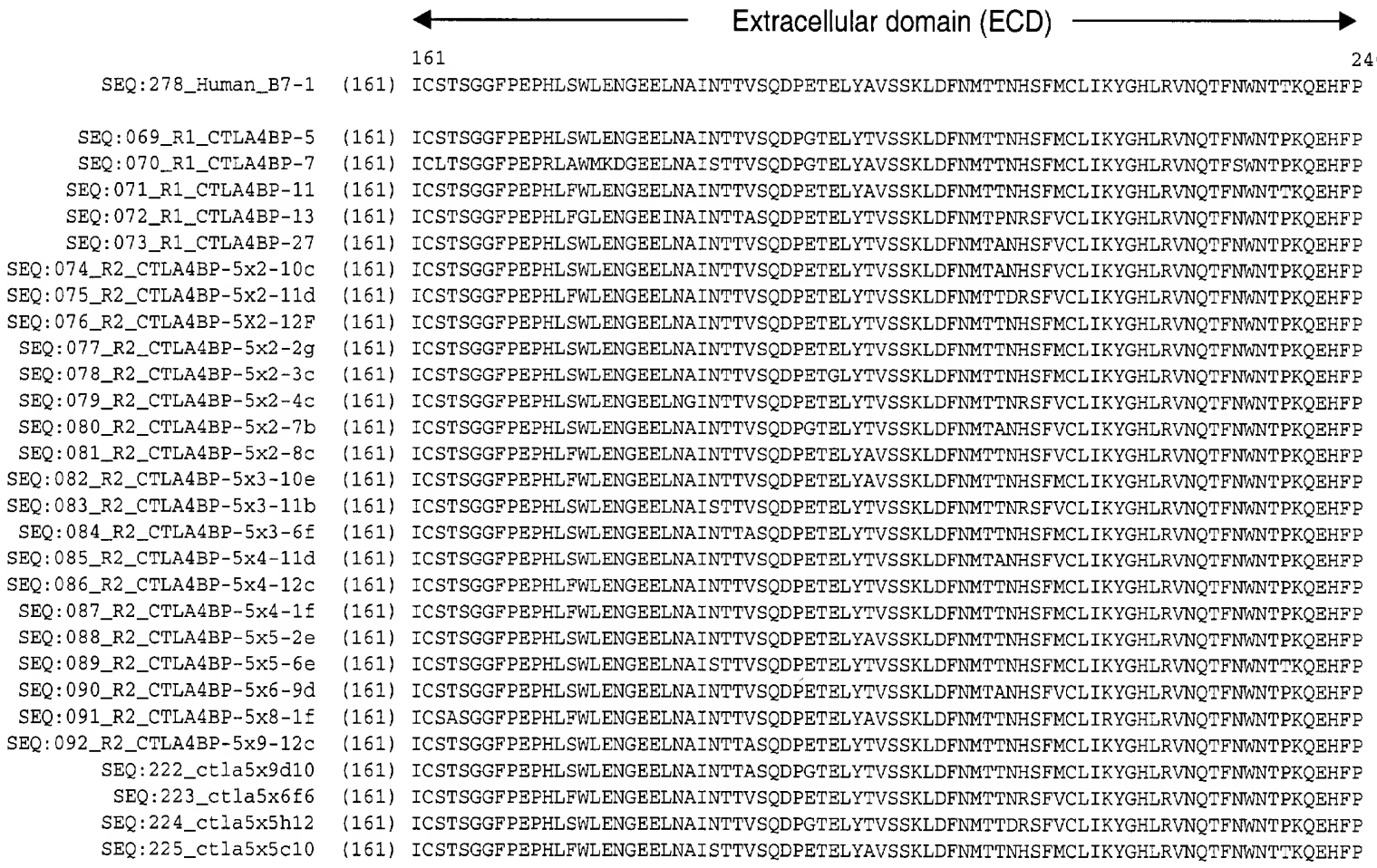
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Fig. 3E

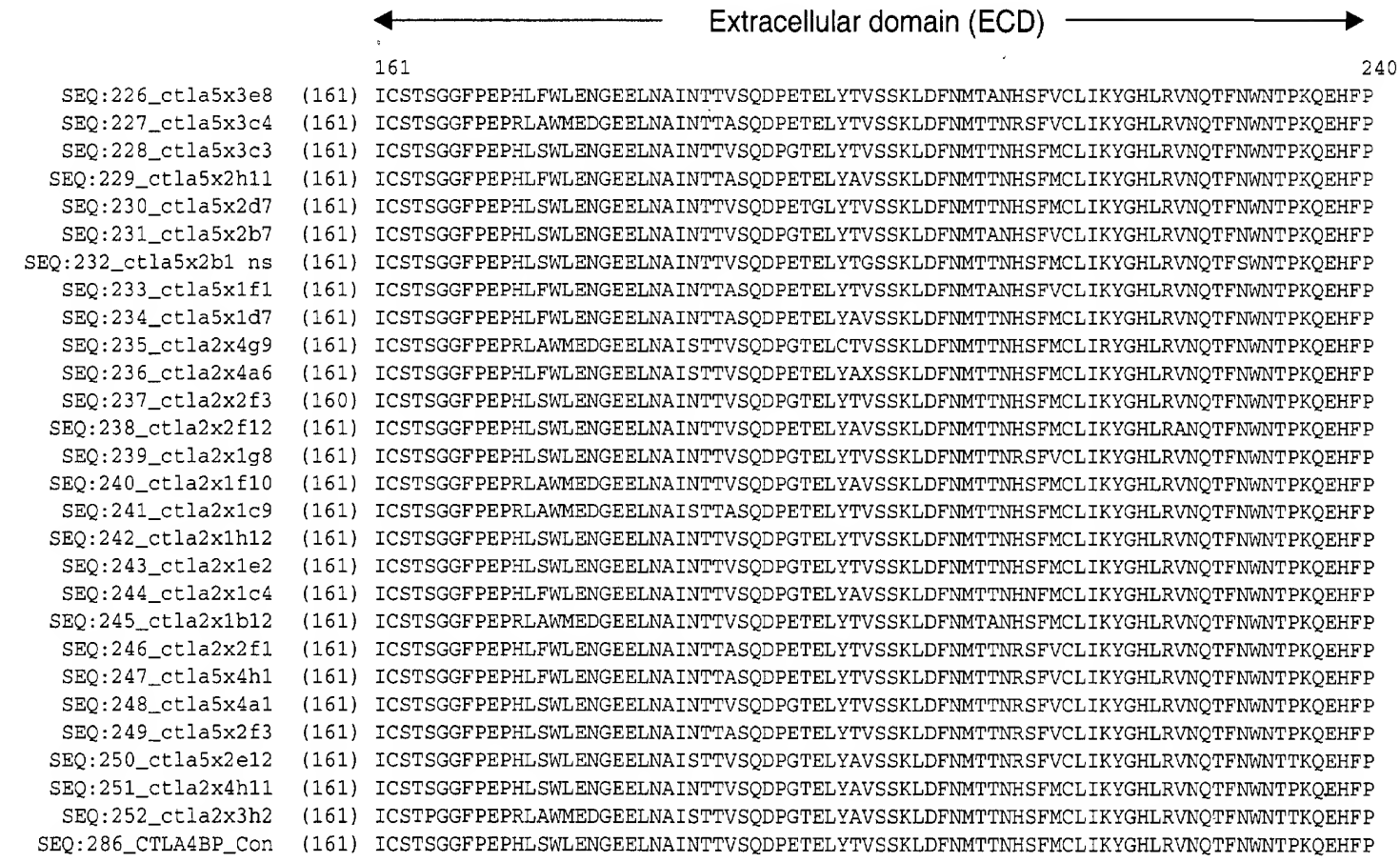
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Fig. 3F

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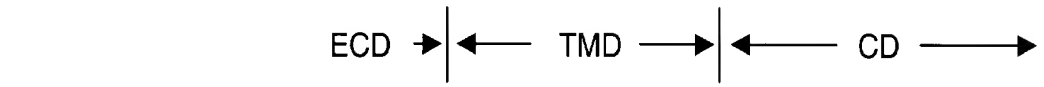
Fig. 3G

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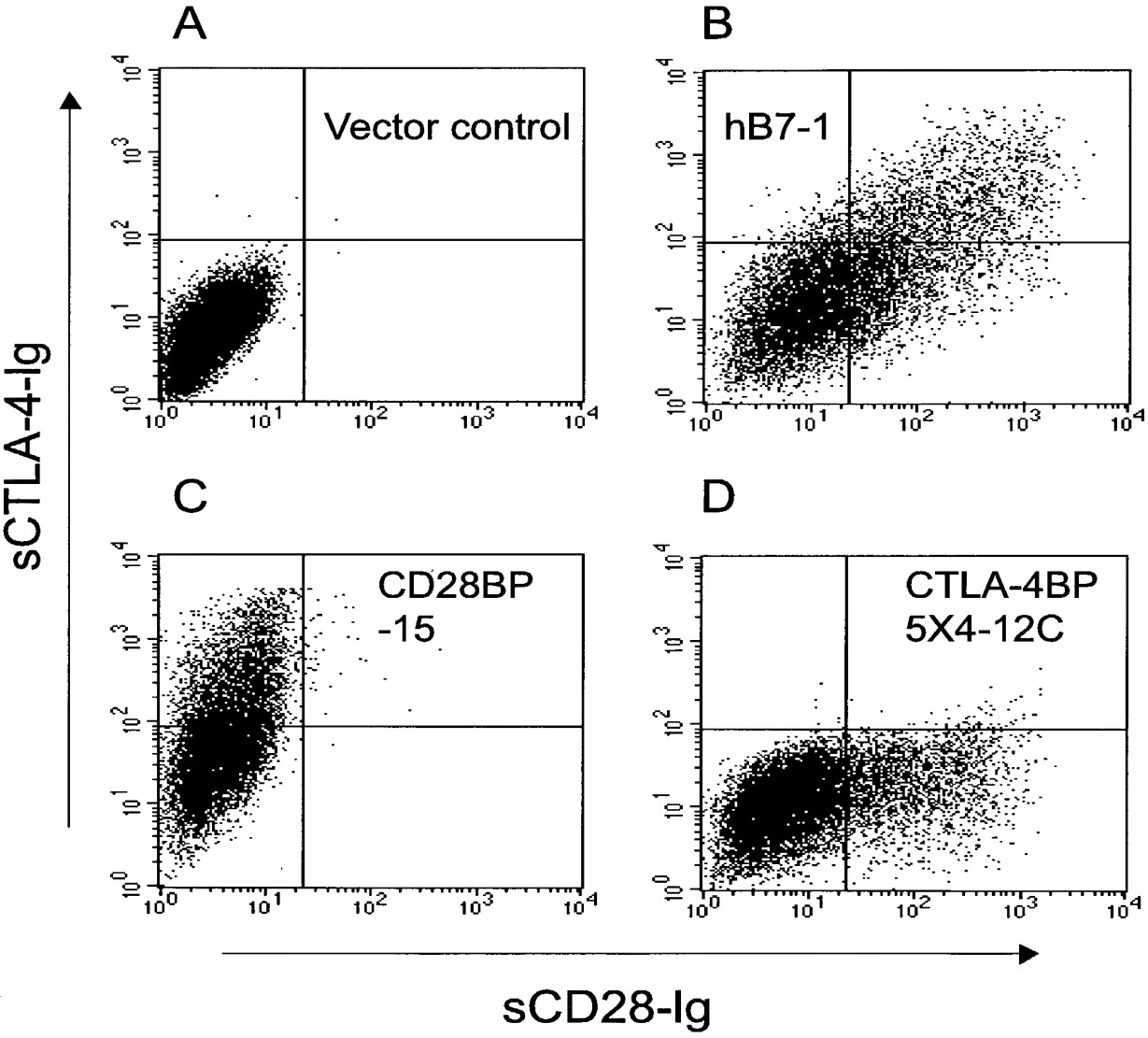
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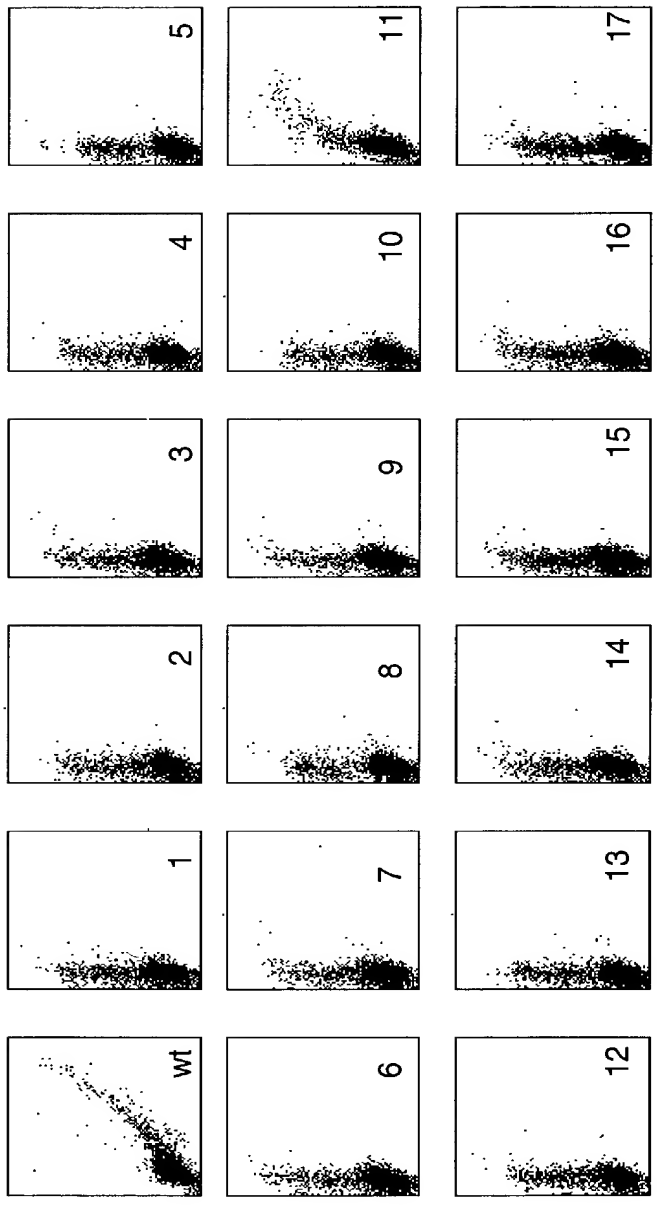
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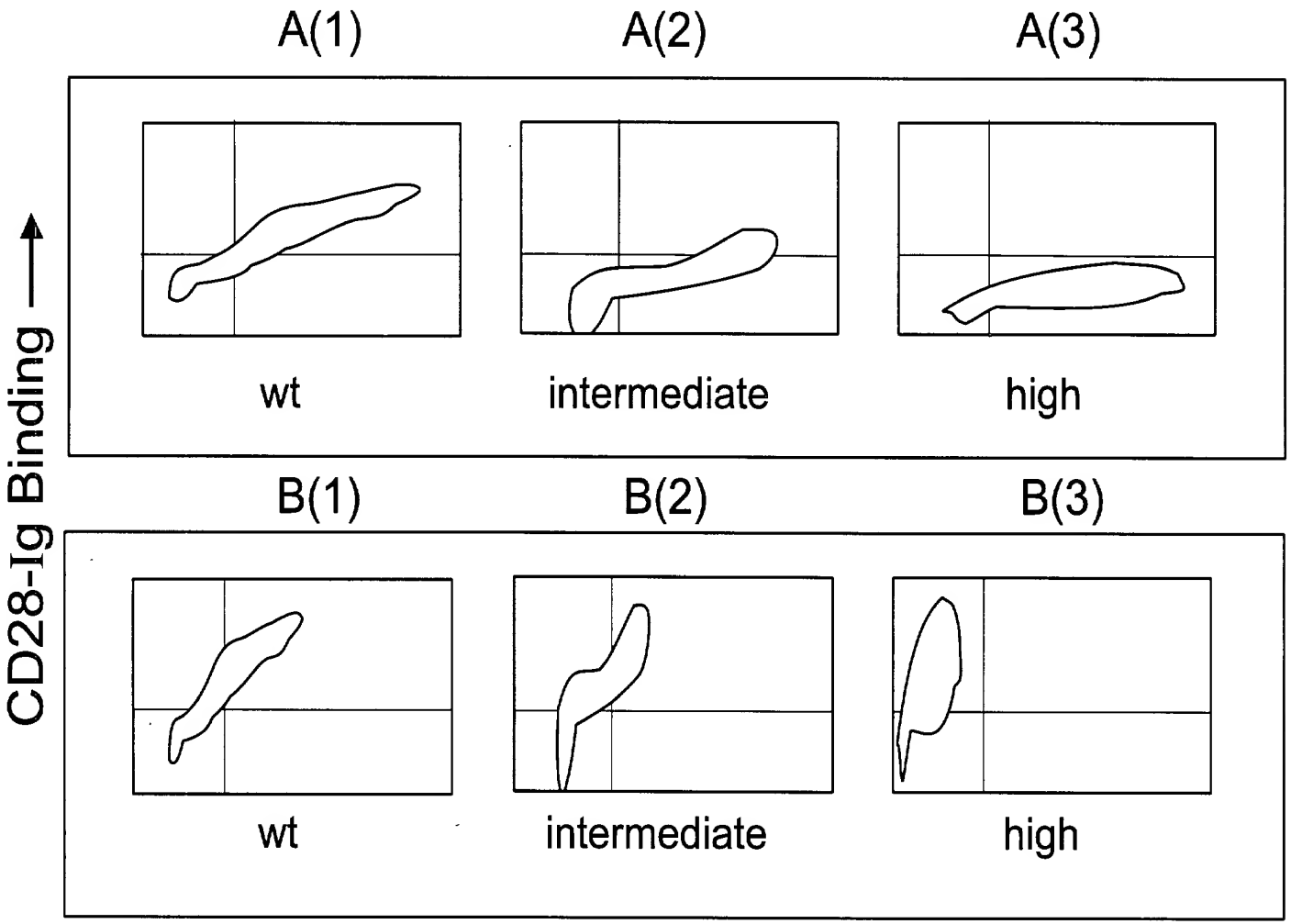
Fig. 5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CTLA-4-Ig Binding

Fig. 6

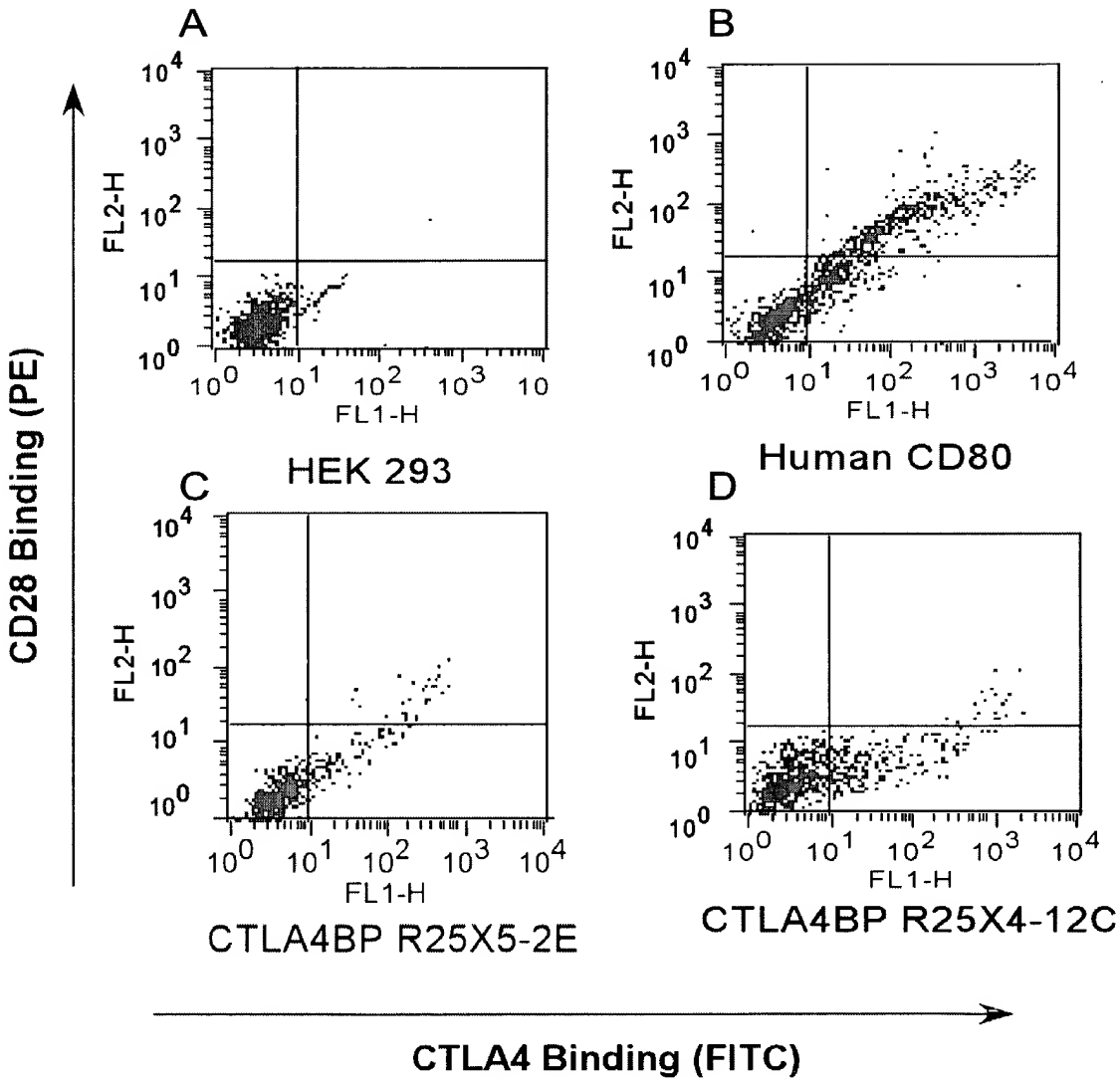

A
B
C
D
HEK 293
Human CD80
CTLA4BP R25X5-2E
CTLA4BP R25X4-12C
FL2-H
FL1-H
CD28 Binding (PE)
CTLA4 Binding (FITC)

Fig. 7A-D

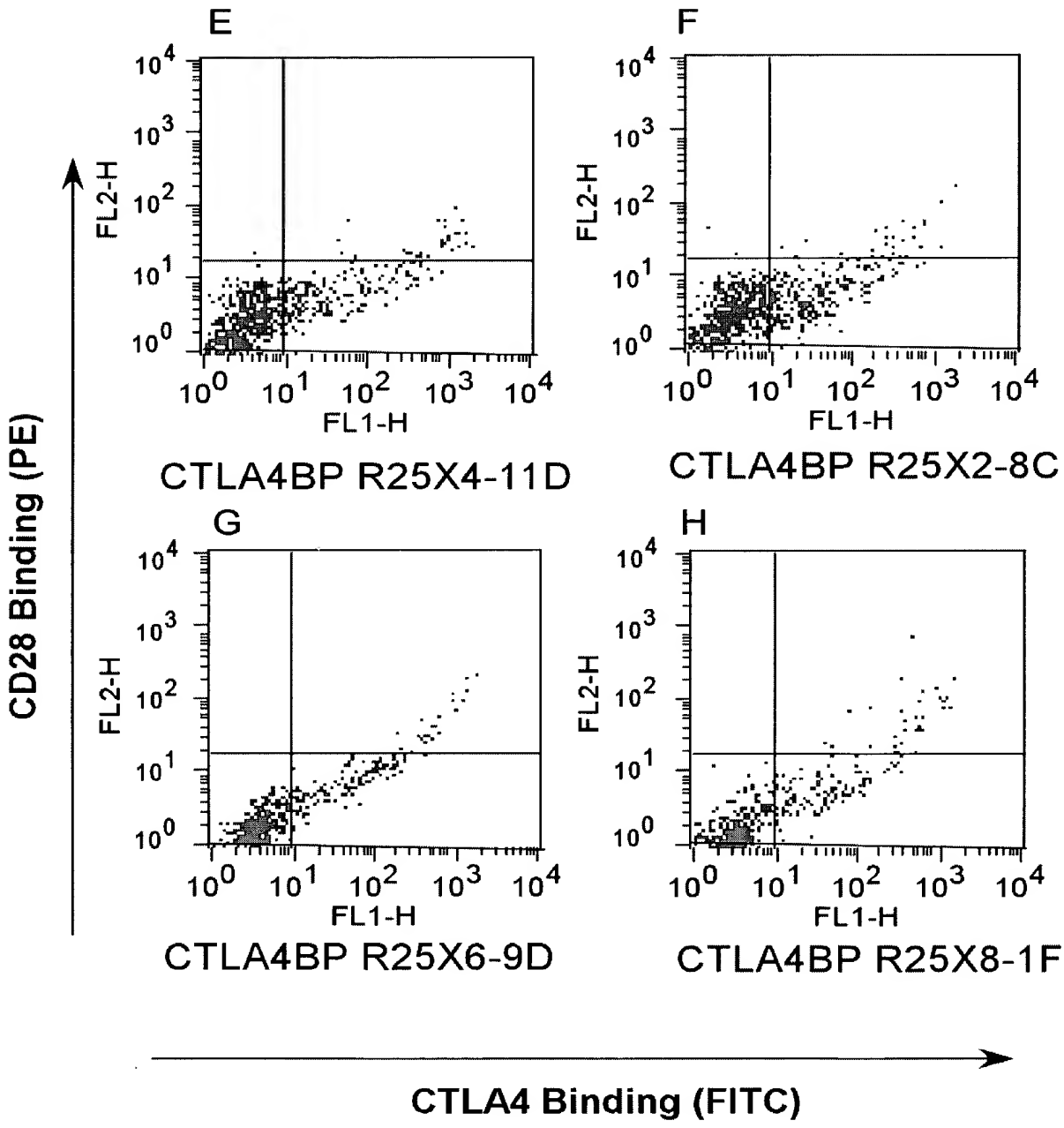

E
F
G
H
FL2-H
FL1-H
CD28 Binding (PE)
CTLA4 Binding (FITC)
CTLA4BP R25X4-11D
CTLA4BP R25X2-8C
CTLA4BP R25X6-9D
CTLA4BP R25X8-1F

Fig. 7E-H

Fig. 8A

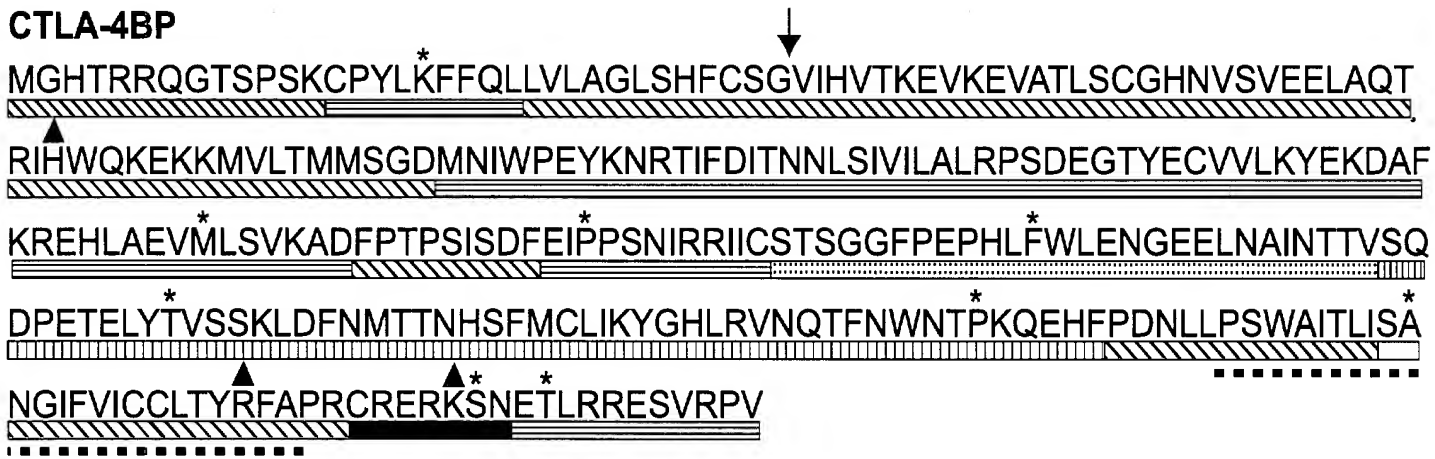
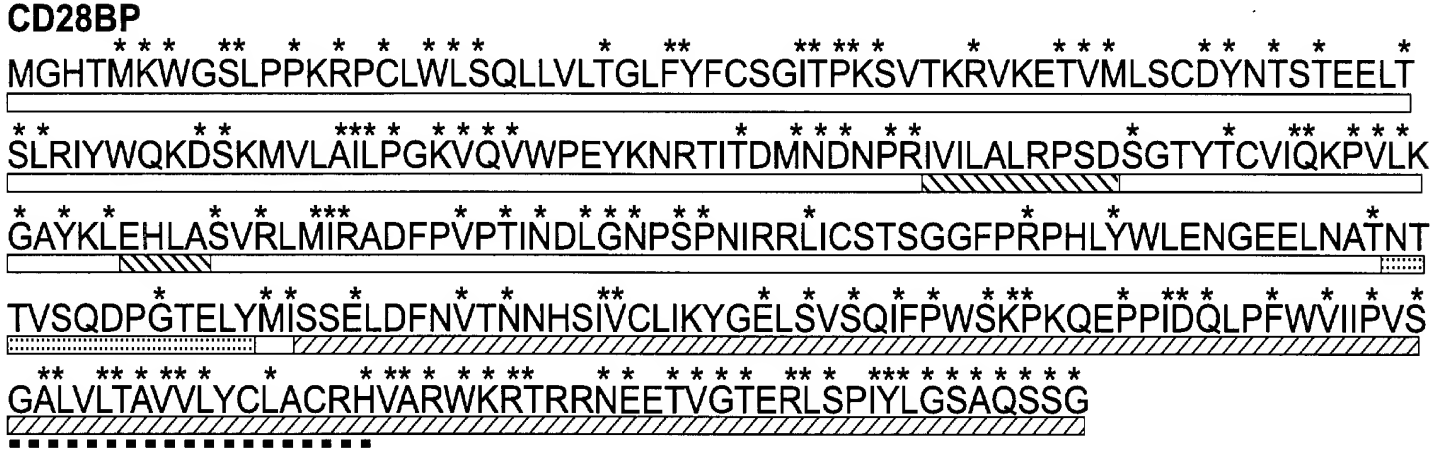


Fig. 8B



human
orangutan
rhesus
baboon
rhesus/baboon
cow
rabbit

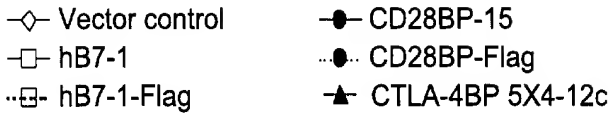


Fig. 9A

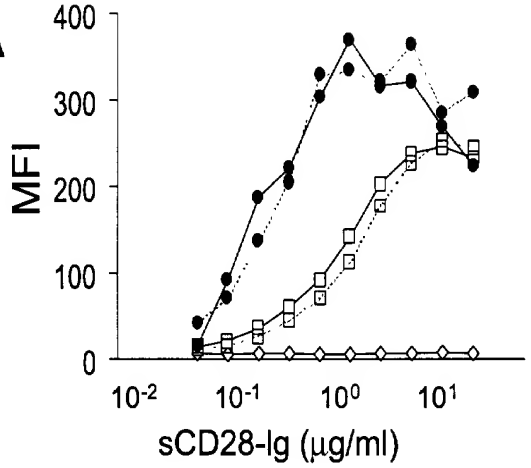


Fig. 9C

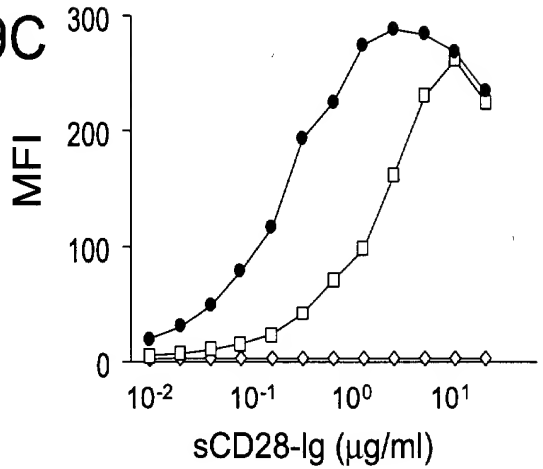


Fig. 9B

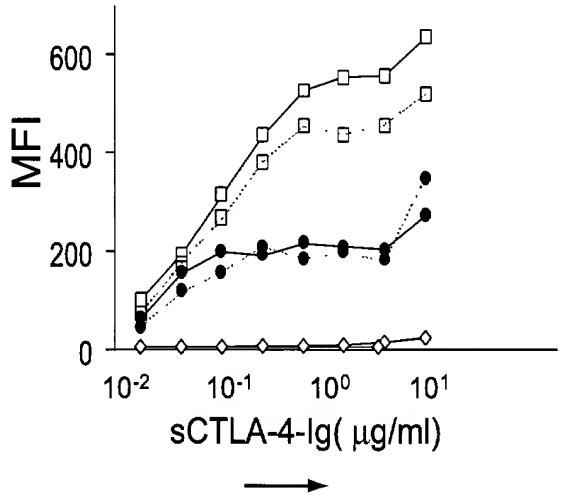


Fig. 9D

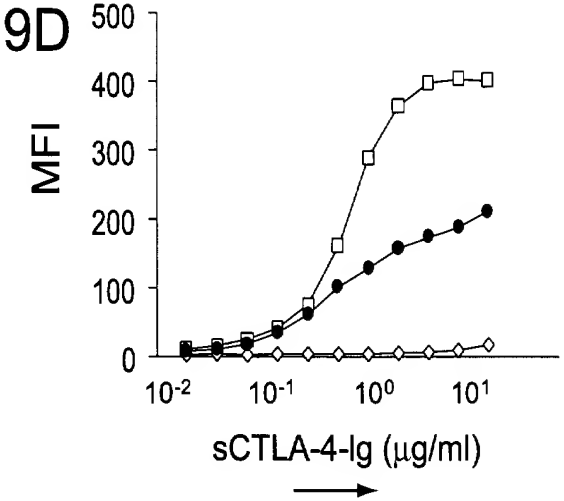


Fig. 9E

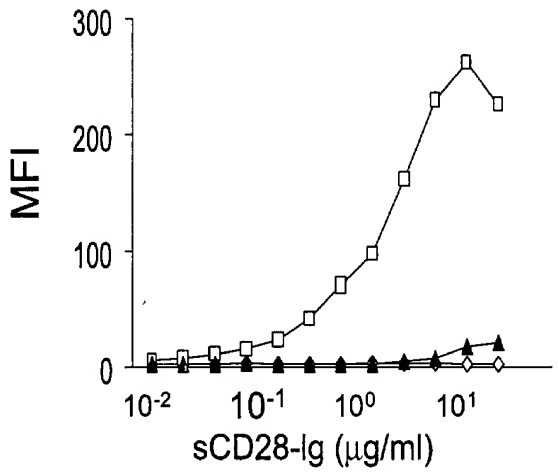


Fig. 9F

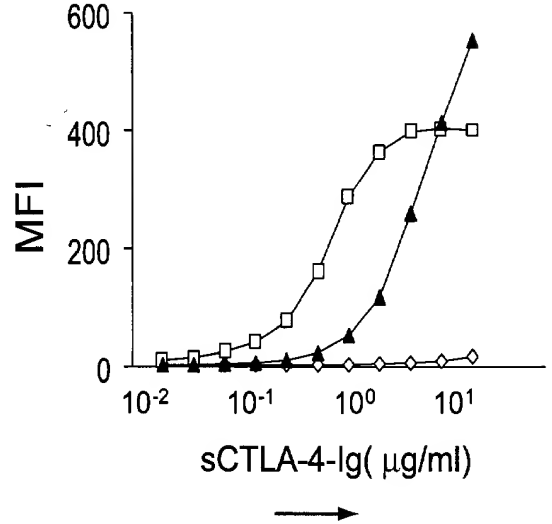


Fig. 9G

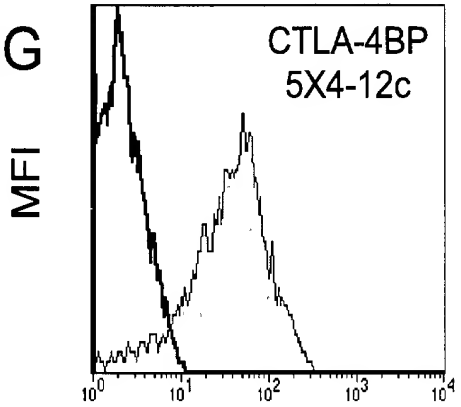
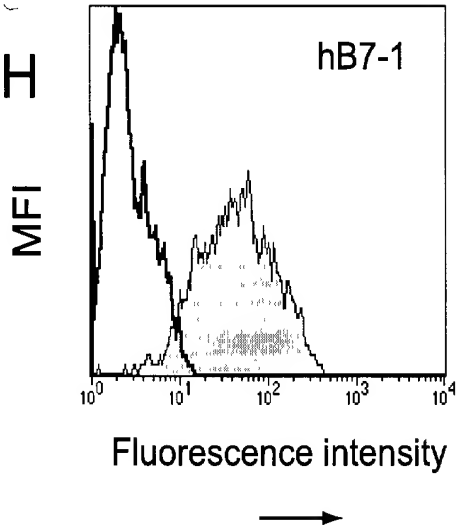


Fig. 9H



3H Thymidine Uptake (cpm)
250000
200000
150000
100000
50000
0
Control Vector
(B7-1) CD80
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
CD28BP Clone Number

Fig. 10

Fig. 11A

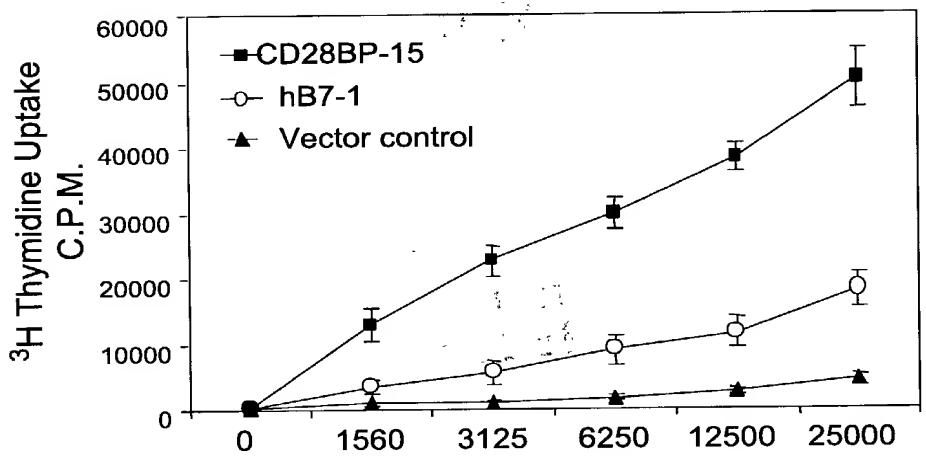


Fig. 11B

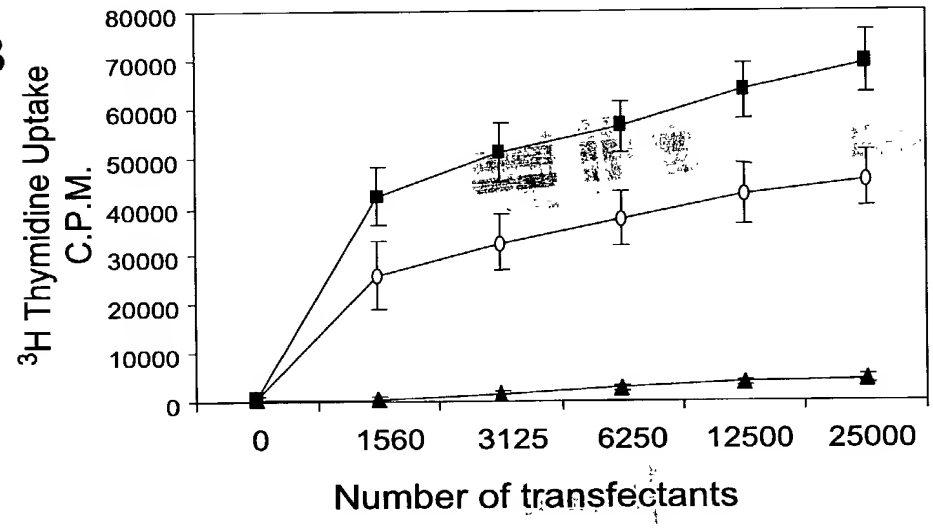
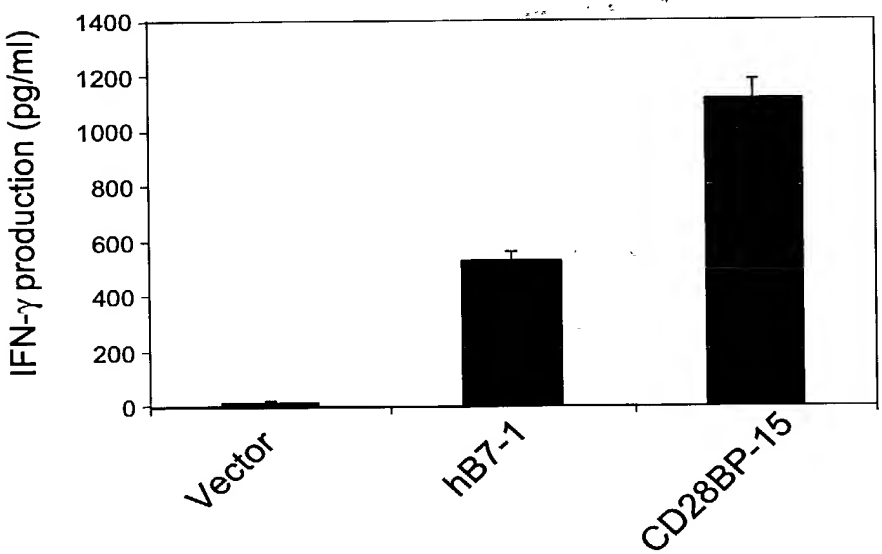


Fig. 11C



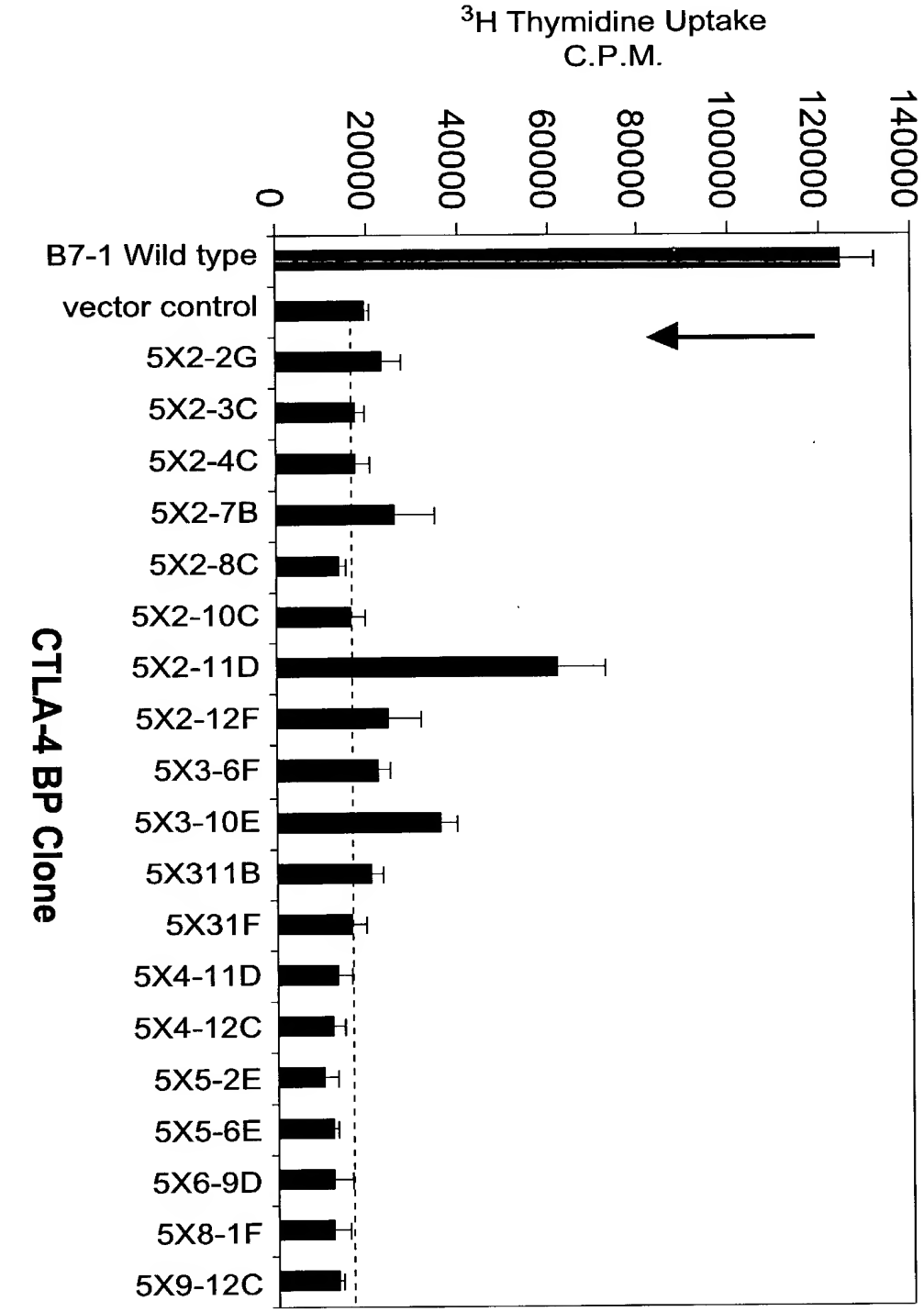

^{3}H Thymidine Uptake
C.P.M.
0
20000
40000
60000
80000
100000
120000
140000
B7-1 Wild type
vector control
5X2-2G
5X2-3C
5X2-4C
5X2-7B
5X2-8C
5X2-10C
5X2-11D
5X2-12F
5X3-6F
5X3-10E
5X311B
5X31F
5X4-11D
5X4-12C
5X5-2E
5X5-6E
5X6-9D
5X8-1F
5X9-12C
CTLA-4 BP Clone

Fig. 12

Fig. 13A

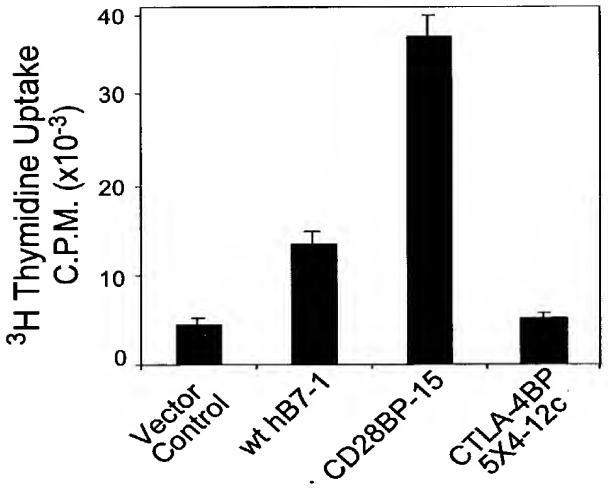


Fig. 13B

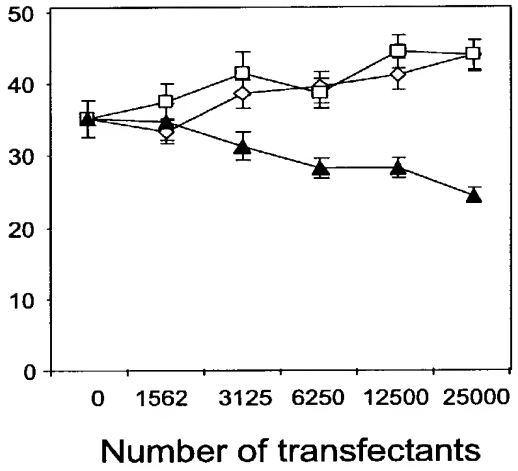


Fig. 13C

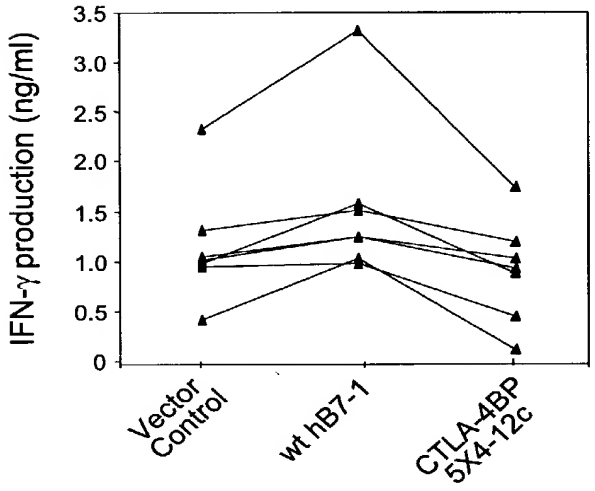


Fig. 13D

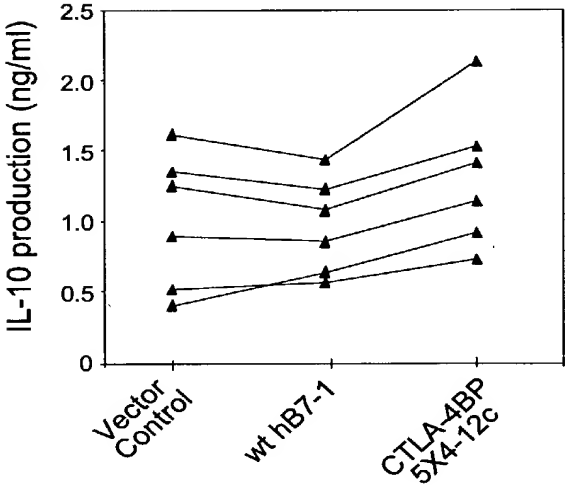


Fig. 14A

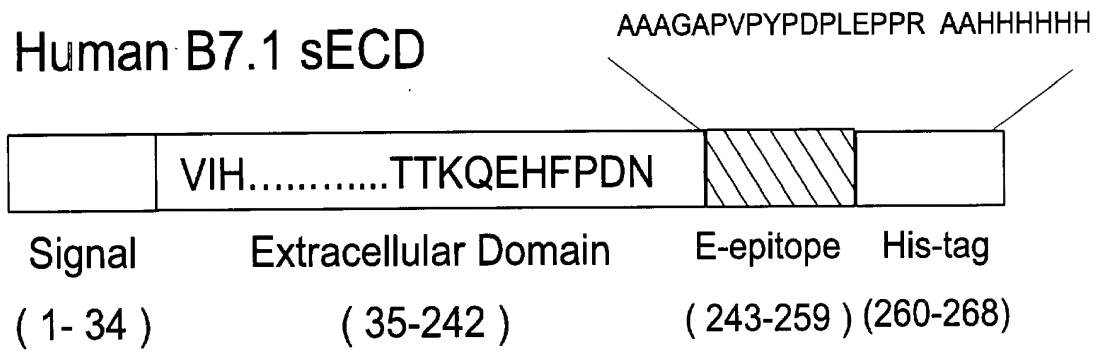
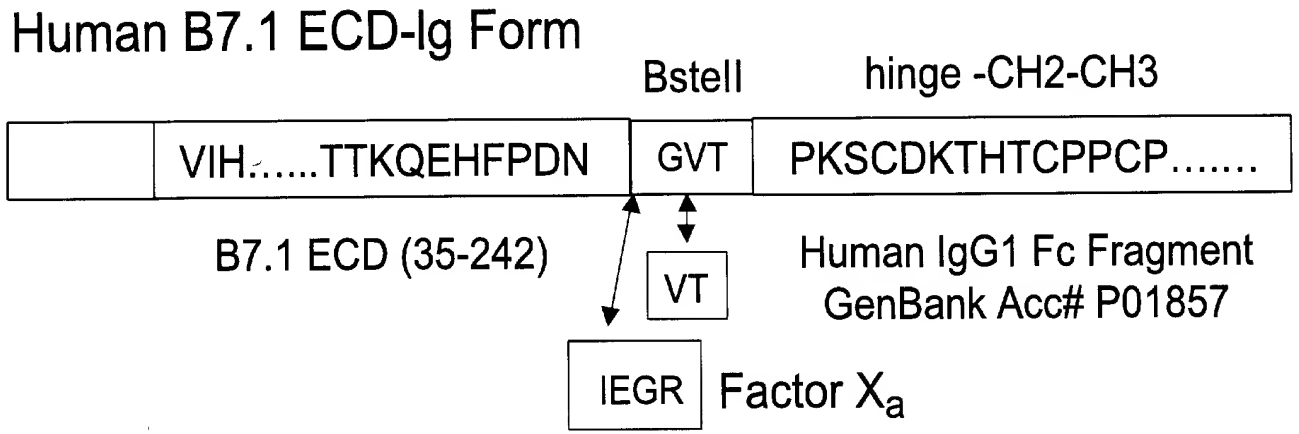


Fig. 14B



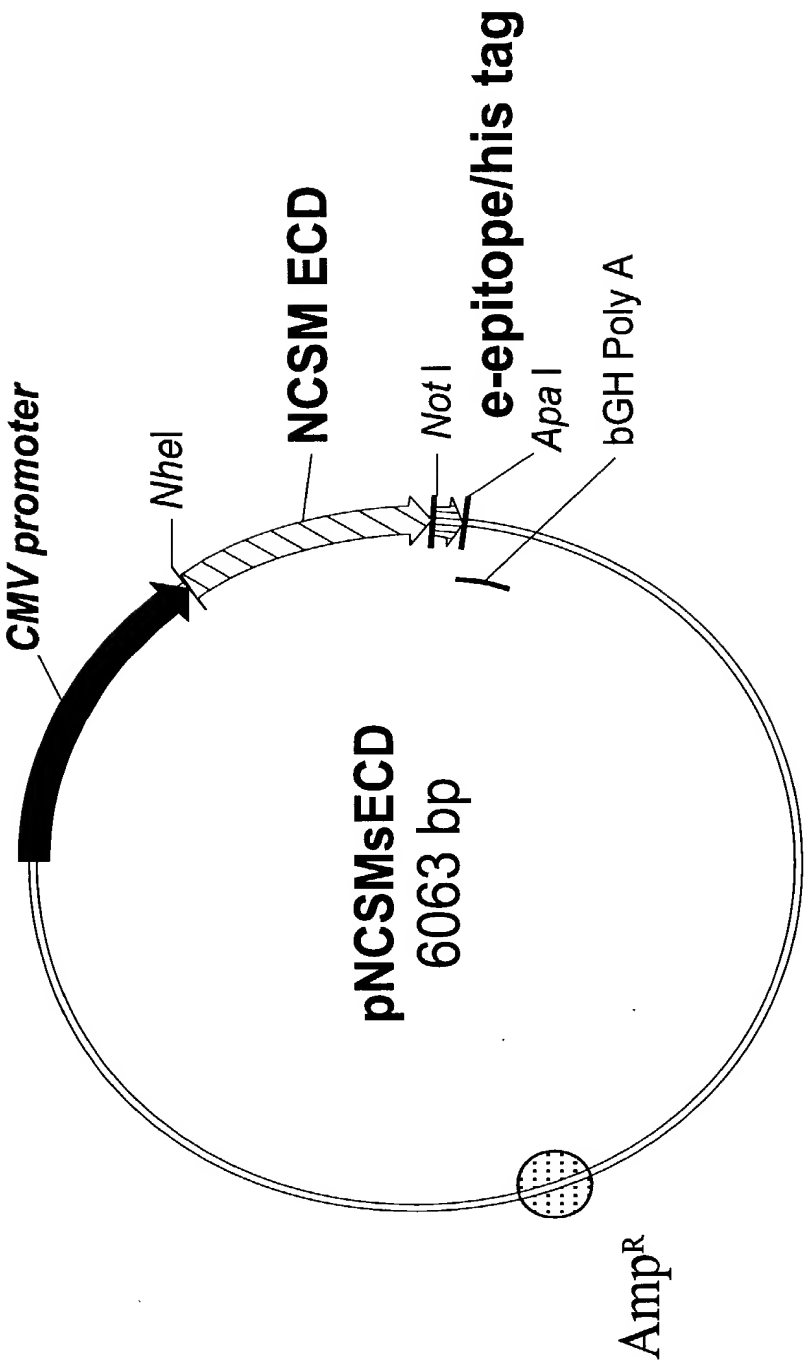

CMV promoter
NheI
NCSM ECD
NotI
e-epitope/his tag
ApaI
bGH Poly A
pNCSMsECD
6063 bp
AmpR

Fig. 15

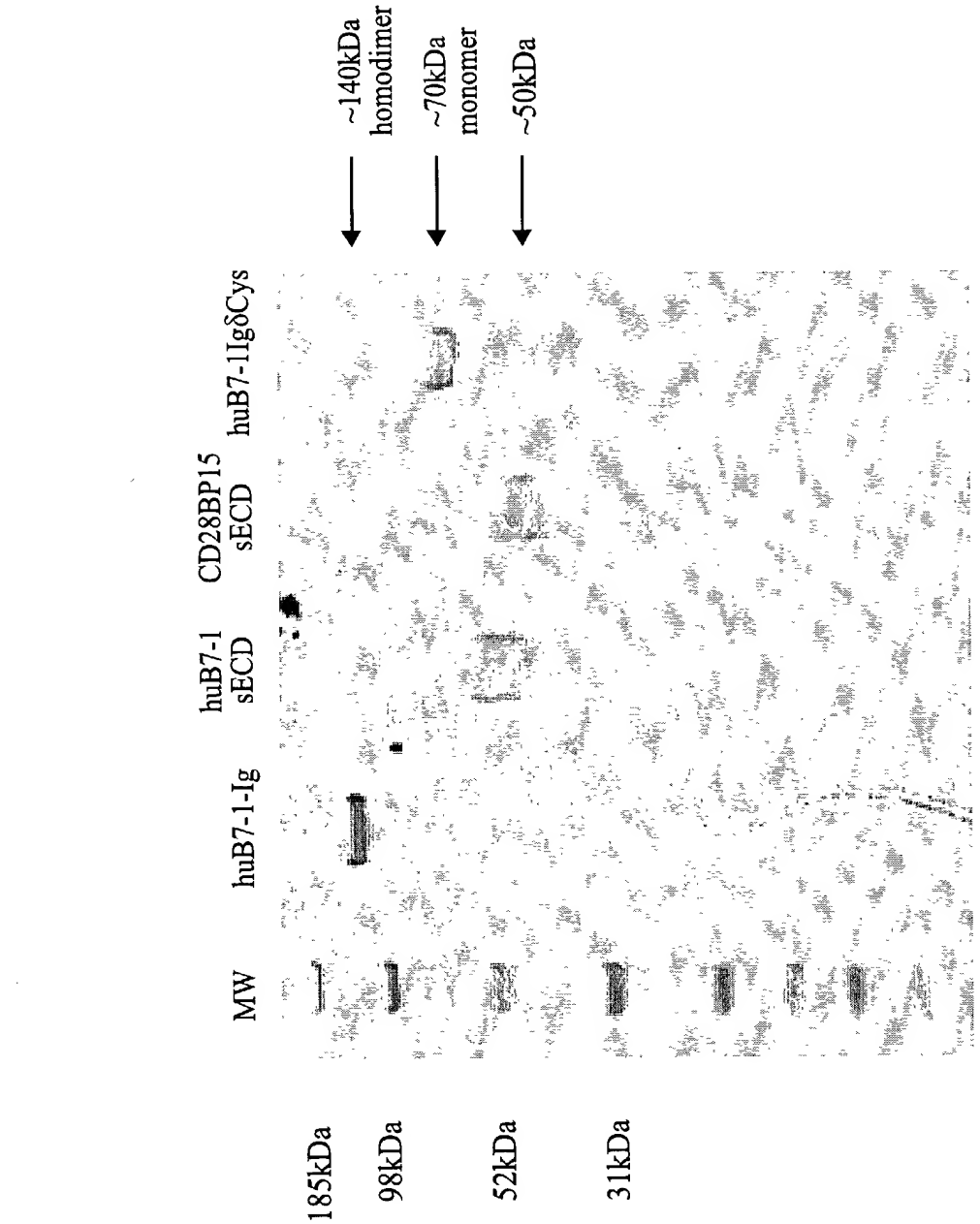

MW
huB7-1-Ig
huB7-1 sECD
CD28BP15 sECD
huB7-1IgδCys
185kDa
98kDa
52kDa
31kDa
~140kDa homodimer
~70kDa monomer
~50kDa

Fig. 16

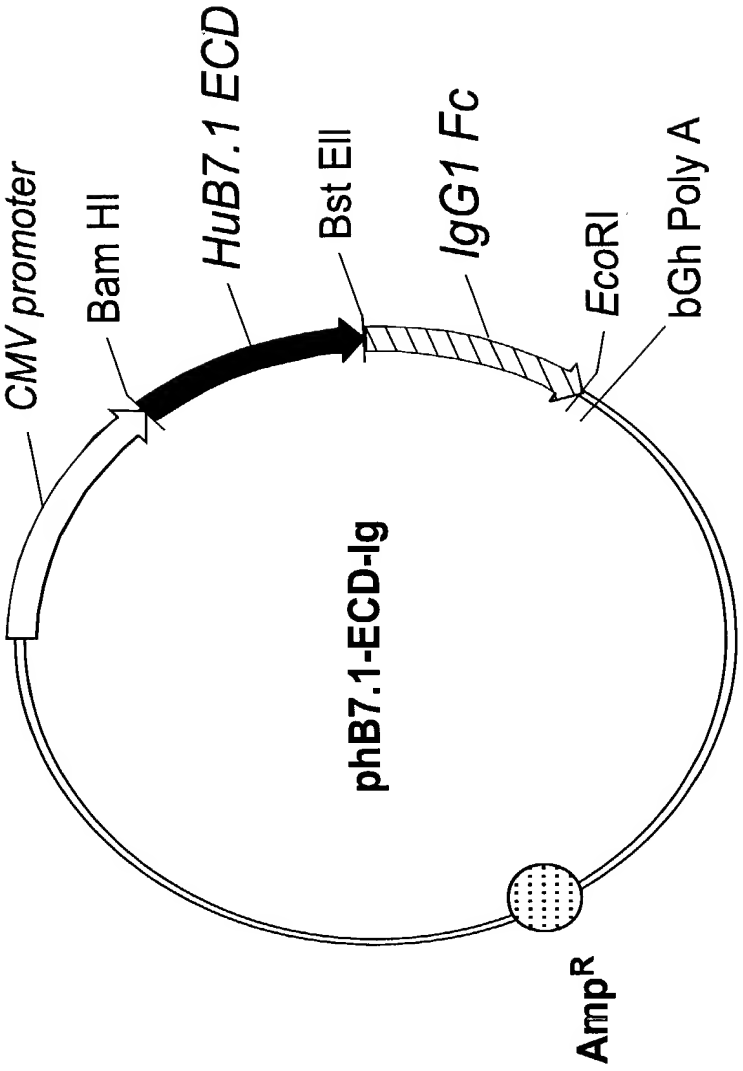

CMV promoter
Bam HI
HuB7.1 ECD
Bst EII
IgG1 Fc
EcoRI
bGh Poly A
phB7.1-ECD-Ig
AmpR

Fig. 17

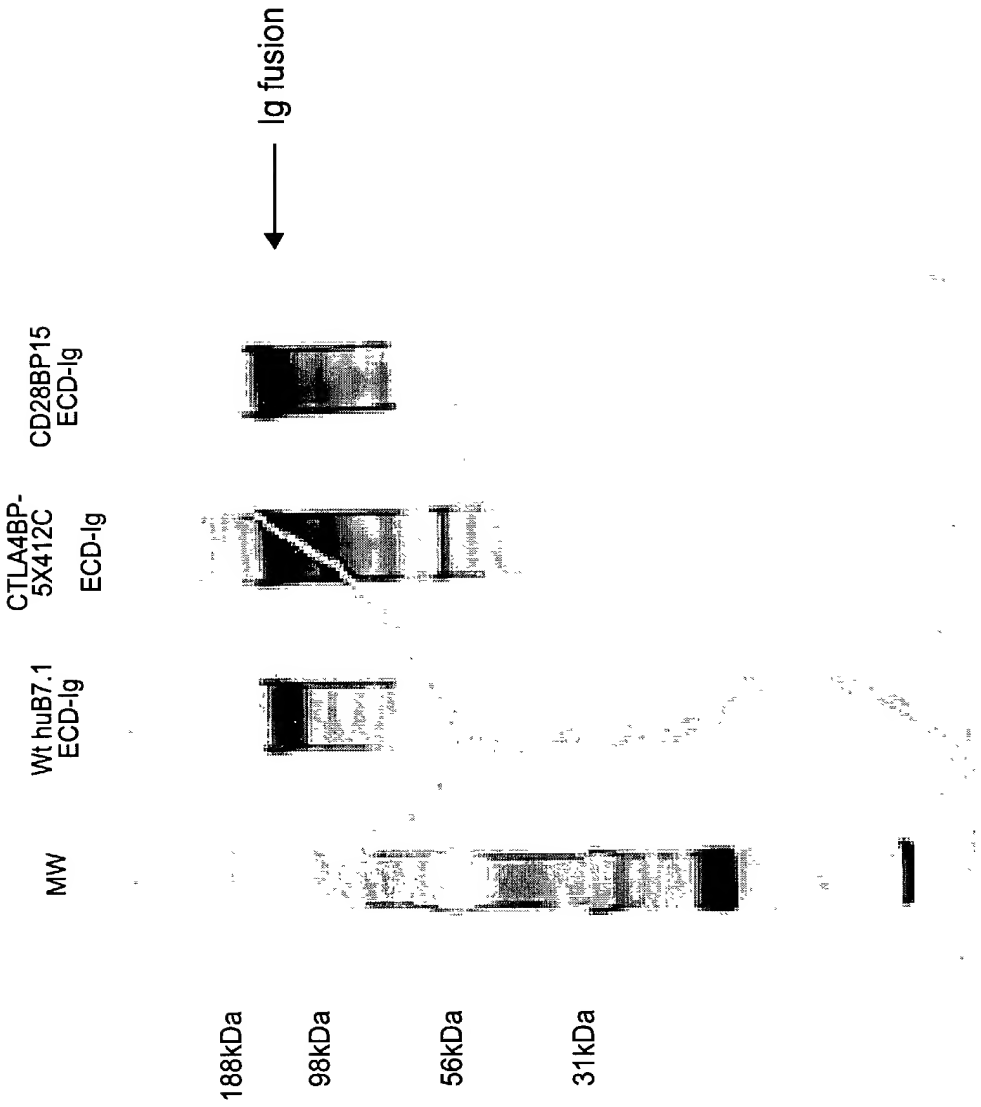

Ig fusion
CD28BP15 ECD-Ig
CTLA4BP-5X412C ECD-Ig
Wt huB7.1 ECD-Ig
MW
188kDa
98kDa
56kDa
31kDa

Fig. 18

Expression of CTLA-4BP-Ig and CD28BP-Ig Proteins

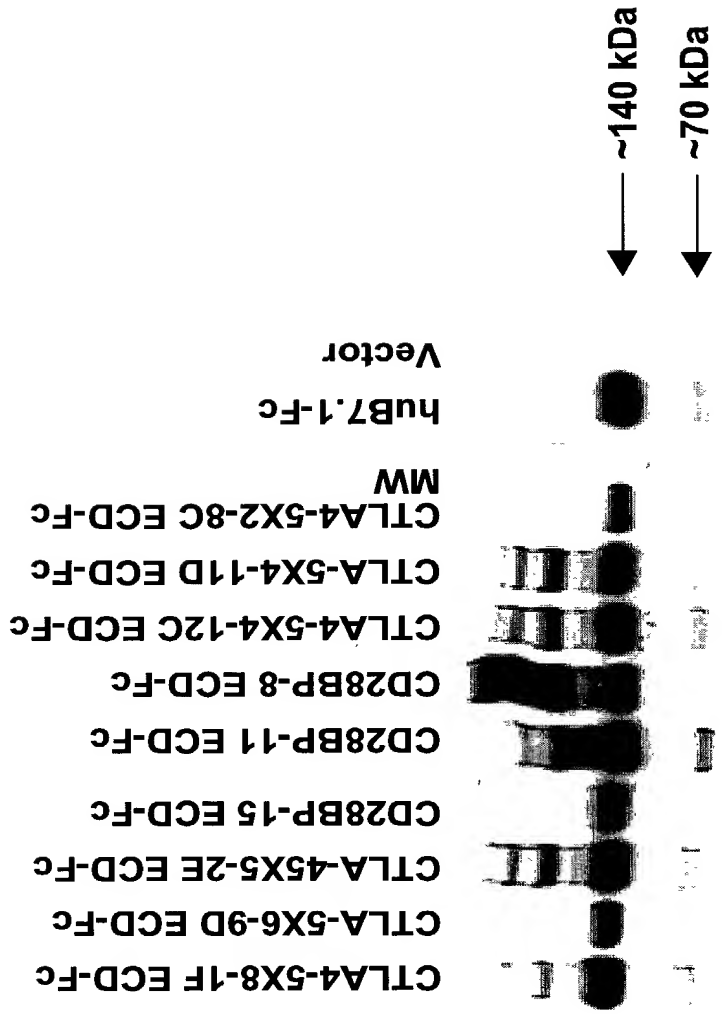


Fig. 19

Fig. 20A

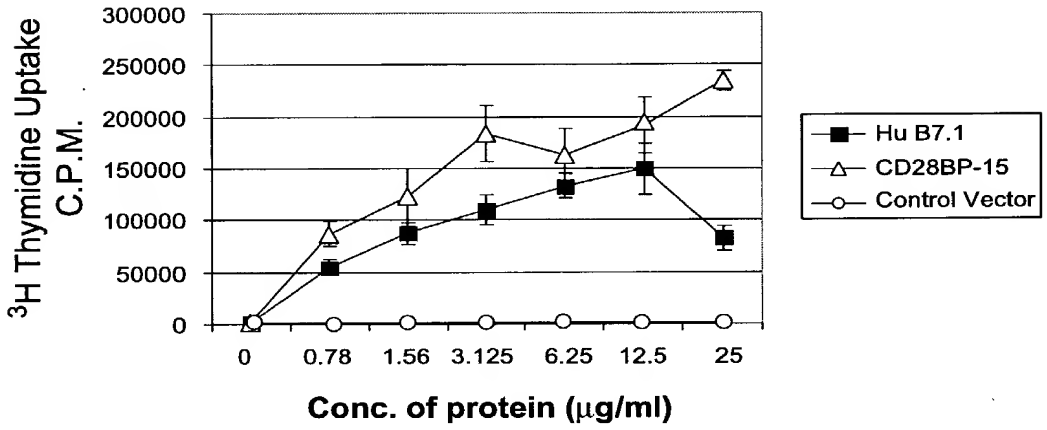


Fig. 20B

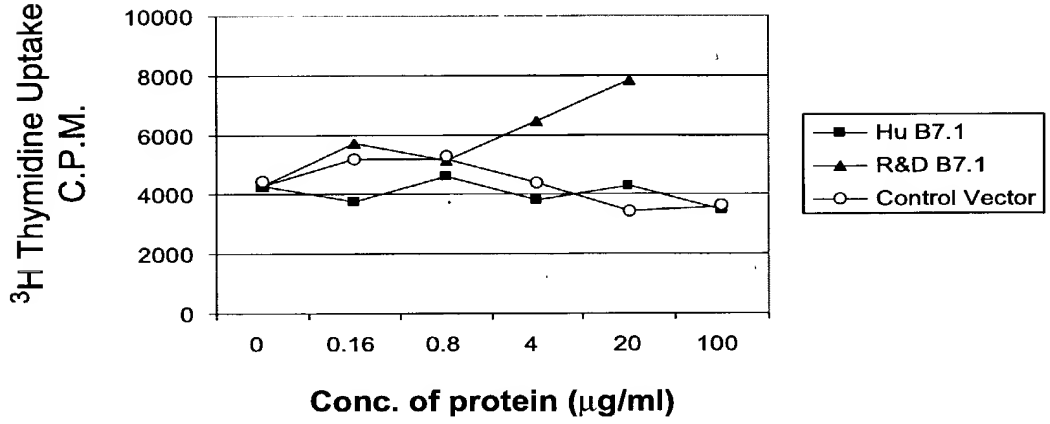


Fig. 20C

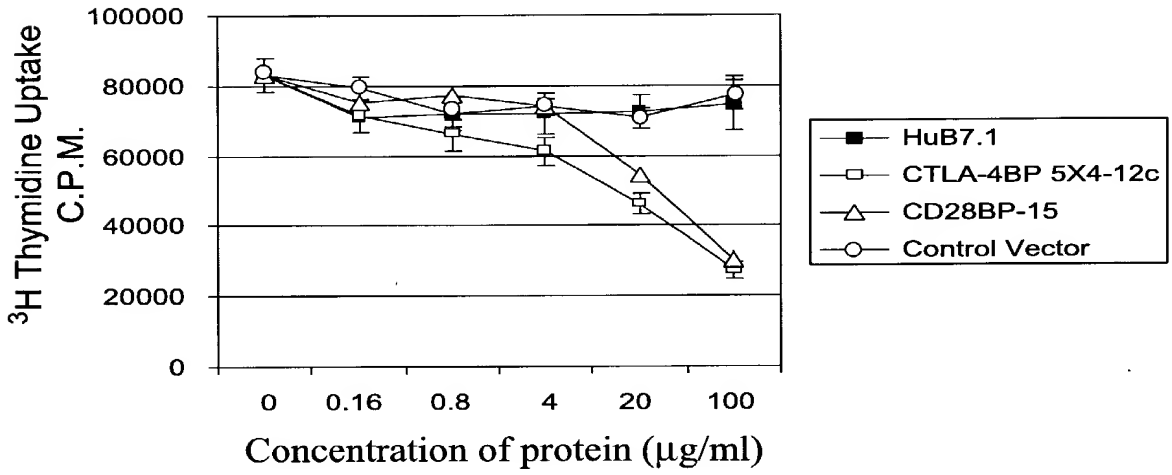
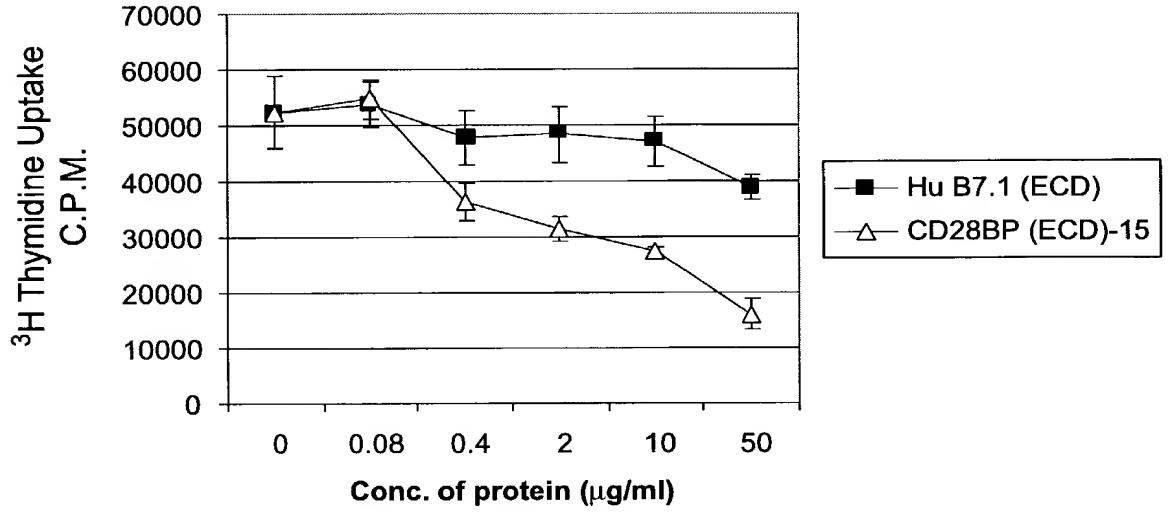


Fig. 20D



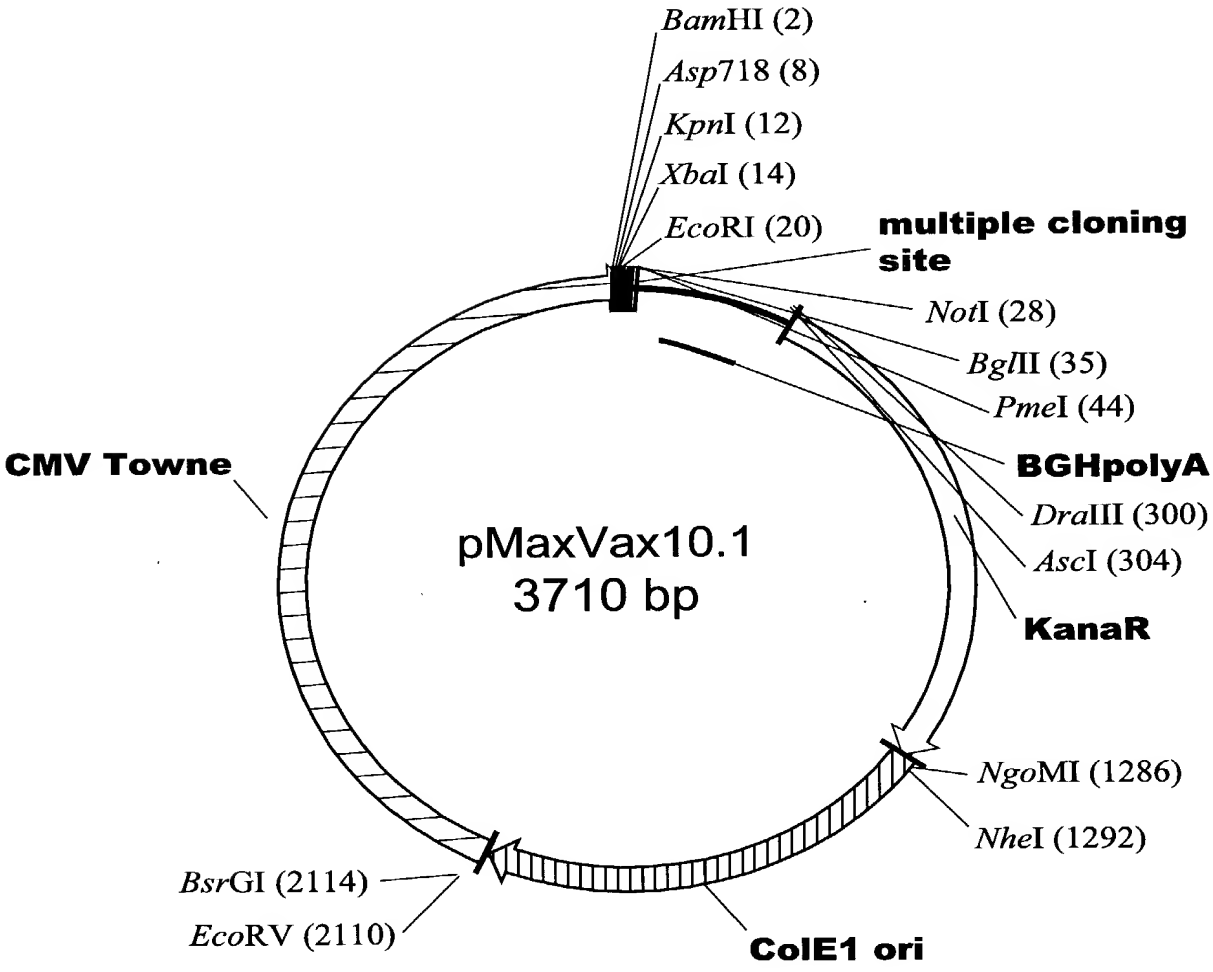

BamHI (2)
Asp718 (8)
KpnI (12)
XbaI (14)
EcoRI (20)
multiple cloning site
NotI (28)
BglII (35)
PmeI (44)
BGHpolyA
DraIII (300)
AscI (304)
KanaR
pMaxVax10.1
3710 bp
CMV Towne
NgoMI (1286)
NheI (1292)
BsrGI (2114)
EcoRV (2110)
ColE1 ori

Fig. 21

Fig. 22A

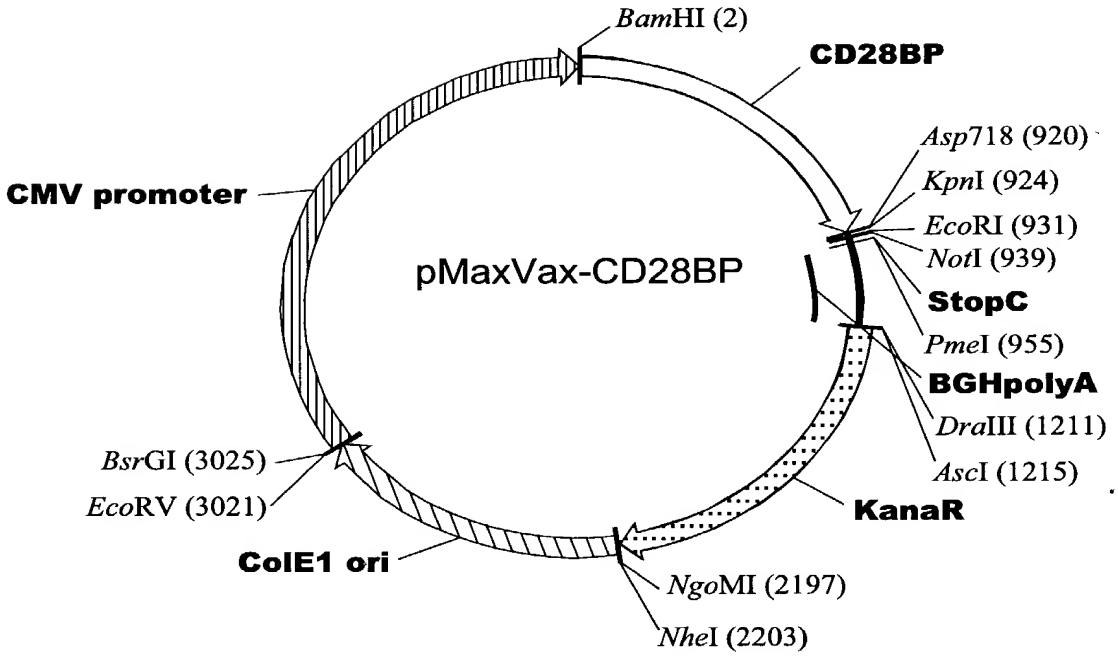
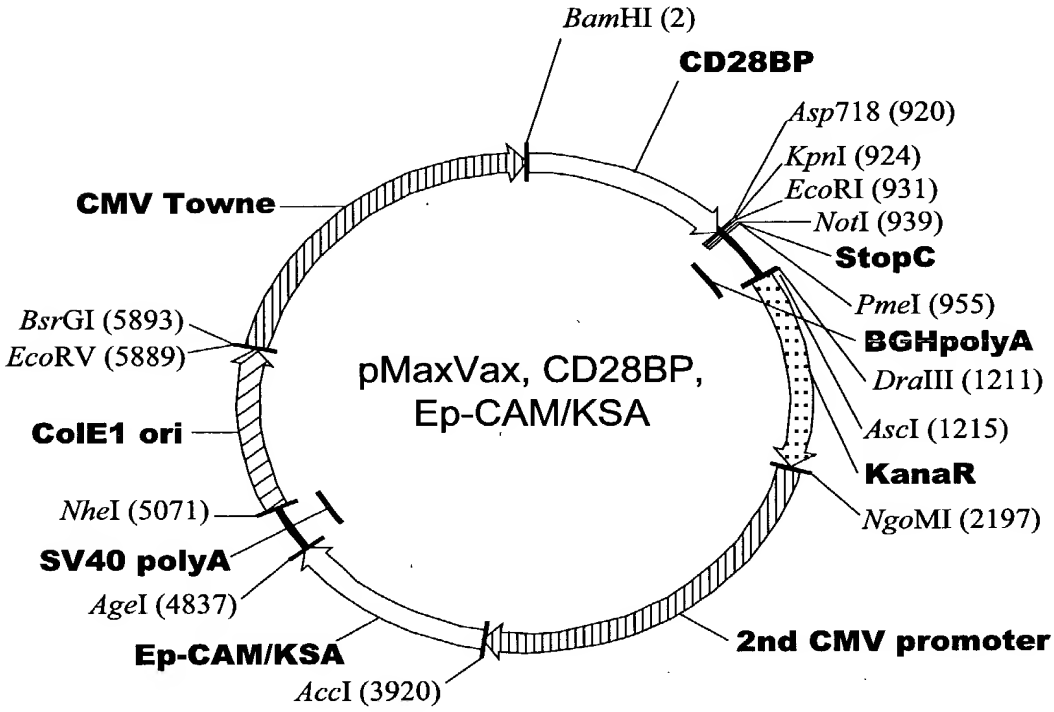



Fig. 22B